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ABSTRACT

Discussion of National Science Foundation (NSF) funding of precollege science education revolves around the controversy of whether NSF should fund "Man: A Course of Study" (MACOS). NSF had funded MACOS' curriculum development, implementation, and postevaluation during 1963-1975. The controversy began in March 1975 when U.S. Congressman John Conlan introduced a measure to the House Committee on Science and Technology to bar further funding of MACOS in support of Phoenix schools' moral opposition to MACOS. The controversy quickly expanded to four major political issues: (1) the proper allocation of economic activity between the public and private sectors; (2) the proper division of power between the federal and local governments; (3) the proper distribution of power, authority, and decision-making roles among scientists-bureaucrats and citizens-politicians; and (4) which values should dominate public activity, scientific or traditional. The related events during 1975 are presented, such as activity and reports of the House of Representatives, letters, and news media reports. Specifically looked at are Harvey Averch's NSF testimony to the House in February 1975, NSF's disposition of its 19 current projects, and the House debate on the 1977 budget. In response to the controversy, NSF decided to stop funding curriculum implementation projects, continue funding curriculum development at a reduced level, and begin various monitoring procedures. An extensive reading list on related topics is included. (ND)

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The NSF Science Education Controversy: Issues, Events, Decisions

by

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PREFACE

Karen Wiley presents here the results of a painstaking analytical study of events that are of vital interest to all educators, and particularly to social science/social studies educators. In the midst of an emotion-laden furore, she has made an heroic effort to be objective.

One of the most important contributions of the paper, in my own view, is her convincing argument that, despite the importance of many issues raised about the proper roles and procedures of government, the real heart of the controversy is values. Values are taught in all educational efforts, not just in those curriculum development and implementation efforts the criticism of which is reviewed in this paper. The issue between "scientific" and "traditional" values, as Wiley hesitantly calls them, is really the question, "To what extent shall the values most commonly accepted in our society be open to examination?" The paper throws much light on this vital issue, without presuming to settle it.

This publication is a part of the continuing effort of ERIC/ChESS and the SSEC to inform educators and other interested persons about important developments in social studies and social science education.

Irving Morrissett
Director, ERIC/ChESS
Executive Director, SSEC

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Karen B. Wiley

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THE NSF SCIENCE EDUCATION CONTROVERSY: ISSUES, EVENTS, DECISIONS

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Introduction

In the summer of 1954, the National Science Foundation (NSF) supported its first high school science teacher training institute. On March 17, 1975, H. Guyford Stever, the Director of NSF, announced that NSF would obligate no more funds for curriculum implementation activities pending completion of a thorough study.

On November 27, 1956, NSF granted its first precollege science curriculum development award, to the Physical Science Study Committee. On March 10, 1976, the Foundation issued a press release explaining its decision to strictly curtail current curriculum development activities. About one month before, Harvey Averch, NSF's Acting Assistant Director for Science Education, had outlined in Congressional testimony a tentative new direction for the Foundation's precollege science education program.

In the 20-odd years between the Foundation's first small venture into precollege science education and the apparent retreat of 1975-76, it had sponsored 53 curriculum development projects and a substantially larger number, not specifically reported anywhere, of teacher training and "implementation" projects. It began its efforts in the natural and physical sciences and mathematics and later expanded its scope to include social science education. It began its efforts in teacher training in the content and methodology of the sciences and later expanded into training in pedagogy and materials.

Some who watched this expansion welcomed the greater federal activity in curriculum and instructional reform; others viewed it with dismay and mounting alarm. That alarm periodically surfaced in Congressional

oversight debates. Its most recent and serious expression in the halls of Congress began on March 6, 1975, when Congressman John Conlan of Arizona introduced a measure before the House Committee on Science and Technology to bar further funding of the NSF-sponsored curriculum, *Man: A Course of Study* (MACOS). From there, the controversy expanded beyond the confines of Congressional chambers to the professional and mass media. It expanded from a question about a single curriculum package to a question about the Foundation's entire precollege science education program. And it expanded from a single, limited issue into a broad, major issue raising complex fundamental questions about the U.S. political system and basic American values.

The expansion of the controversy seems, at this point, to have brought about a contraction and redirection of NSF activity in precollege science education. It is the purpose of this article to describe how this contraction came about.

Growth of NSF Science Education Activity, 1950-1975

The Foundation was established by the National Science Foundation Act of 1950 (U.S. Congress, 64 *Stat.* 149-157), which charged NSF with promoting "basic research and education in the sciences" [Sec. 3(a)(1)]. This primary charge of the Foundation could be interpreted broadly, although the language of the Act referred explicity only to a limited range of educational activities at the undergraduate and graduate levels (specifically, provision of scholarships and fellowships for science education) in the natural sciences (physical, medical, and biological), mathematics, and engineering.

The officials of the Foundation at first were reticent about interpreting their educational charge broadly. But within a very few years--with strong pressure from Congress, the science and education communities, and the public--the Foundation expanded its activities in science education, until at one point the science education budget constituted nearly one half of the entire Foundation budget--$64 million out of the total appropriation of $136 million in fiscal year 1959. (Library of Congress 1976, Ch.II)

Although the Foundation's activities had expanded into science education at all levels and into the social sciences with the encouragement and approval of Congress, these developments were not recognized officially in the Act until the late sixties and early seventies. In 1968, the language of the Act was changed to include explicit references to the social sciences. In 1972, the statute was amended to include specific reference to precollege education and a broader conception of the kinds of educational support provided by the Foundation. (U. S. Congress, 64 *Stat.* 149; "National Science Foundation," 42 *U.S.C.* 1861-1875; "National Science Foundation," 42. *U.S.C.* 1973 *Supp.* 1862.)

The Foundation first began attending to precollege science education in the summer of 1954, when it sponsored a summer institute for high school teachers of mathematics. The institute was suggested by a scientist outside the Foundation and was considered an experiment. The Foundation was searching for ways to increase high school student interest in and preparation for college-level study in science. The concern over preparation of scientific manpower, which would be galvanized into a top national priority in October 1957 with the Soviet launching of Sputnik, was just beginning to develop at this point. The Foundation's officials were still hesitant about entering into precollege education, but at the urging of Congress, they sponsored a few more summer institutes in the following years.

Then, in fiscal year 1956 two new elements were added to the program. Academic Year Institutes for the training of high school science teachers were begun and the Foundation made its first entry into the area of curriculum development by holding several conferences of educators, scientists, and federal officials to discuss science curriculum and its improvement. Its first grant for curriculum development was awarded on November 27, 1956, to Massachusetts Institute of Technology for the Physical Science Study Committee (PSSC) project. Development of instructional materials grew out of the teacher training experiences. It became apparent that up-to-date and imaginative materials were needed to help teachers translate the scientific content and methods they had learned in institutes into effective classroom practices. In the next three years, the teacher training efforts were expanded and new curriculum development projects in chemistry and biology were begun. In 1959,

for the first time, the Foundation supported an institute that would focus on the teaching of one of its own curricula, PSSC. (Library of Congress 1976)

During the period 1950-75, NSF spent approximately $1.6 billion on its science education programs, of which about $189 million, or 12 percent, was for curriculum materials development and implementation. (Library of Congress 1976, Appendix A; Science Curriculum Review Team 1975, Vol. II, Appendix 7) Of the $189 million, $107 million was spent for materials development and $82 million for implementation.

Average support for the 53 funded projects was about $3.6 million per project. However, support for individual projects varied greatly, from $200,000 or less for each of eight projects (most of which produced no commercially publishable materials) to over $10 million for each of six projects, one of which received almost $20 million.

Forty-three of the projects were focused on mathematics and the natural sciences, ten on the social sciences. The average support for the social science projects was about $2.6 million, compared with $3.8 million for the mathematics and natural science projects. None of the social science projects were in the $10 million class. (Science Curriculum Review Team 1975, Vol. II, Appendix 7)

Thus, within the first decade of its existence, the Foundation had embarked on both of the science education activities that were to be the focus of controversy in 1975--development and implementation. (It did not, however, enter the controversial area of social science curriculum development until 1962, when it awarded a grant to the American Anthropological Association for the Anthropology Curriculum Study Project.) I shall not recount the developments during the intervening years here, since the current controversy over the Foundation's science education program is the primary matter of concern for this paper. Readers who are interested in the history of the NSF science education program should consult the very thorough historical report by the Library of Congress to the House Subcommittee on Science, Research, and Technology, *The National Science Foundation and Pre-College Science Education: 1950-1975.*

MACOS: The Initial Focus of Controversy

The controversy that evolved during 1975 grew out of complaints about one specific NSF-funded curriculum, *Man: A Course of Study* (MACOS).

MACOS was developed by Education Development Center (EDC) of Cambridge, Massachusetts, under three grants from the National Science Foundation, awarded during the period 1963-1969 and amounting to a total of about $4.8 million. In addition, the Foundation provided approximately $2.3 million during 1967-75 to a number of institutions, including EDC, for implementing MACOS and about $326,000 for postevaluation of MACOS between 1970 and 1975. (General Accounting Office 1975, p. 2) The materials were developed under the tutelage of the psychologist Jerome Bruner and, from 1966 until its close, Peter B. Dow was director of the project.

The MACOS curriculum is well described by Dow himself:

> *Man: A Course of Study* is a course for upper elementary school children in the study of human behavior that is organized around the question "What is human about human beings?" The goals of the program are threefold: to give students a set of models for thinking about the social world, to provide them with some intellectual tools for investigating human behavior, and to evoke in children an appreciation of the common humanity that all human beings share. To achieve these goals, the developers of the course devised a series of units drawn from several well-researched studies of animal behavior; constructed exercises and materials that permit children to gather data, formulate hypotheses, explore inferences, and compare information gathered from a variety of sources, including their own direct observations; and created an extensive case study of a culture very different from our own [the Netsilik Eskimos]. These materials, units, and exercises draw upon a wide variety of media, including games, records, pictures, charts, a diversity of written materials, together with an extensive library of ethnographic film. These materials are specifically designed to accommodate a wide variety of skill levels and learning styles, and they have been organized to promote an open-ended exploration of the uniqueness of human beings as a species and the underlying similarities that unite all races, ethnic groups, and cultures. Recurring themes include the life cycle, learning, dependency, parental care, adaptation, dominance, affection and love, agression, social organization, language, technology, beliefs, and values. These themes are explored from different perspectives throughout the course. (*Social Education*, Oct. 1975, pp. 388-89, 393)

In 1967, as the developmental effort was approaching its final stages, EDC began its search for a commercial publisher for MACOS. Over 50

publishers were contacted and 43 indicated an interest in the materials. (General Accounting Office 1975, p. 23) However, it turned out that none were willing to undertake publication and marketing. Both production and marketing would be extremely costly in comparison to normal textbook publishing standards. The materials comprised a variety of expensive media--especially films. And EDC was requiring that the publisher include relatively extensive teacher training in its installation services, because of the unique nature of the course's teaching strategies and the powerful potential of the subject matter. In addition, the publishers noted that some of the content was controversial. This, together with the high price that would have to be charged, meant that MACOS was too great a risk.

Because no publisher could be found, NSF authorized EDC in 1969 to undertake publishing and distribution on an experimental basis in order "to demonstrate the commercial feasibility and profitability of marketing MACOS" (General Accounting Office 1975, p. 23). Later that year, NSF decided to allow a lower-than-usual royalty rate for a commercial publisher, could one be found, to help bring down the publisher's costs. The success of EDC's distribution efforts and the lowered royalty rate eventually attracted the interest of five commercial publishers, four of which subsequently submitted bids. Curriculum Development Associates of Washington, D.C., was chosen in 1970, mainly because of its willingness and capabilities in offering the specialized teacher training as part of school district installation of the program (General Accounting Office 1975, p. 24).

Since its publication in 1970, there have been several outcroppings of community opposition to the course. Although controversies have not been common in the 1,700 school districts in 47 states using the materials in 1975, scattered complaints have been heard in several states, including Florida, Maryland, Texas, Washington, and--of particular significance for the 1975 nationalization of the controversy--Arizona.

The Issues

The Phoenix, Arizona, area can lay claim to originating the 1975 controversy over NSF's science education program. Phoenix, Arizona, is

Congressman John Conlan's home district. It was the local controversy over the installation of MACOS in the Phoenix schools that impelled Conlan to raise the issue in the House Committee on Science and Technology during its discussion of the Fiscal 1976 NSF budget authorization.

On March 6, 1975, Conlan moved that

> No funds authorized shall be available directly or indirectly for further development or implementation of "Man: A Course of Study," MACOS. (Quoted by Rep. Symington, *U. S. Congress*, April 9, 1975, p. H2595)

The specific complaints against MACOS that were raised in this and subsequent debate were:

1) The content of the course is unfit for American children; the course advocates un-American values.

2) The instructional methods of the course are manipulative.

3) The implementation activities of the developer go beyond the Congressional mandate; they constitute unfair competition with private publishers; and they exert undue influence on local decision makers.

The initial focus of the debate on MACOS quickly broadened to a questioning of NSF's entire precollege science education program. The charges against MACOS' content and pedagogy were generalized to other NSF projects. All of NSF's implementation efforts came under criticism. Even NSF's management practices in regard to development projects were scrutinized. It was charged that the Foundation's procedures with regard to needs assessment, review and selection of proposals, and monitoring and evaluation of projects did not provide accountability.

As the debate broadened, it became apparent that at its heart were four major, enduring American political questions:

1) What is the proper allocation of economic activity between the public sector and the private sector?

2) What is the proper division of power between the federal government and local governments?

3) What is the proper distribution of power, authority, and decision-making roles among various groups in the political system--specifically, among scientists and bureaucrats on the one hand and citizens and politicians on the other?

4) Which values should dominate public activity (in this case,

education) paid for by taxpayers' dollars--"scientific" values or "traditional" values?

These four issues provide the framework for examining the arguments raised in the debate over MACOS and the Foundation's precollege science education program.

Public vs. Private

This is the traditional debate about whether and to what degree the government should intervene in the operations of the private market.

The critics charge that NSF activity has unfairly favored some publishers over others in the competitive process; that federal intervention in the publishing business is unnecessary in the first place; and that federal intervention has warped the marketplace in favor of unwanted, dangerous curricula.

Rep. Lloyd of Tennessee expressed alarm at "the expenditure of Federal funds for the sale and promotion of a particular educational course of study, which must compete in the marketplace with nonsubsidized materials developed by private enterprise" (U.S. Congress, April 9, 1975, p. H2593). Conlan laid out more specific charges against MACOS and other projects, claiming that, in some cases, the process by which publishers bid on NSF development products was not competitive. Further, special royalty arrangements with publishers absorbed part of the cost of marketing and thus enabled them to "undercut" the competition (Conlan 1975, p. 392). Also, Conlan said, NSF support of field testing has allowed publishers "to iron out the bugs in their products at taxpayers' expense" and the materials being tested act as "a wedge to replace competing curriculum programs--a promotional gimmick to assure widespread sales and profits" for the publisher (U.S. Congress, March 25, 1976, p. H2391). And finally, federal support of teacher training in the use of NSF materials provided extra inducements for those involved in adoption decisions, giving the publishers of NSF materials another unfair advantage over competing publishers, all at taxpayer expense (Conlan 1975, p. 392).

According to the critics, the defenders of federal intervention are wrong when they claim that such federal intervention has been necessary in order to help the private marketplace bring innovations to the public. The private marketplace is quite capable of mounting large innovative

programs when they are demanded, say the critics. As George Weber has noted,

> The argument for this activity has generally been that private publishers do not have the resources to risk in such broad, expensive research. That may be, but it is interesting to note that fundamentally new materials have been developed in the area of beginning reading instruction without federal funds and, indeed, in the face of federal disfavor. (1975, p. 82)

Joanne McAuley called for recognition of private publishers' capacities: "It is time for the Federal Government to acknowledge the vast capabilities of commercial firms in the private sector to do the education curriculum job without Federal interference" (1975, p.20).

The critics note an advantage of leaving curriculum innovation to the publishers. They believe that the publishers are much more in tune with the wants and needs of the public than is the federal government. Conlan quoted a letter he received from Robert R. Laidlaw, president of Laidlaw Brothers, a textbook publisher, that stressed this asset of private publishing firms:

> The large R&D projects undertaken by university people, non-classroom educators, educational theorists, educational psychologists, and various research groups try to revolutionize the content or the method of teaching (the bigger and more radical the idea is, the more success they seem to have in getting federal funding) and too frequently the radical departure from present content and present methods proves to be unsuccessful because present teachers and present pupils do not have the required background of understanding and concepts on which the revolutionary change of content or method depends. Too often the revolutionary methods are impractical within the present structure of education, within the manner in which present day classrooms are organized, or within the time allotment that teachers have at their disposal. Too often these methods are in contradiction to the legal requirements of various states for teaching specific material and content. (U.S. Congress, March 25, 1976, p. H2390)

Publishers, according to the critics, are much more likely to be able to attune their innovations to existing conditions and ideas. Federal intervention, on the other hand, has high potential for warping the process of innovation out of all proportion to need and skewing the marketplace in favor of unwanted and even dangerous products. Critics cite the "New Math fiasco" funded by NSF (Conlan in U.S. Congress, March 25, 1976, p. H2390). As George Weber notes,

> There is no doubt, too, that new programs developed with federal money have a certain advantage in the marketplace. Witness how quickly and thoroughly the new math programs drove the older programs out, to the point where many school systems, concerned about what new math had done to computational skills at the elementary school level, had no alternative materials readily available. (1975, p. 82)

The defenders of NSF educational activity counter that sometimes federal intervention in the private marketplace is justified. Such is the case when private firms are not able to meet clear national needs on their own. In these situations it is fully intended that the effect should be to "skew" the market in new directions and it is not necessarily true that these new directions are unwanted and damaging.

NSF's original tentative and unenthusiastic entry into curriculum development and teacher training was sustained and enlarged by a clear national demand, expressed through Congress, to close the "knowledge gap" so startlingly dramatized by the Soviet launching of Sputnik in 1957. It was widely held at the time that private publishers did not have the resources or the willingness to take risks that would be required to produce up-to-date, scientifically sound curriculum materials and that universities would need assistance in training and retraining teachers in the sciences. It was judged to be in the national interest that NSF stimulate development and training in the lagging market.

This is still the basic rationale for NSF's activity today, as Harvey Averch, Acting Director of NSF's science education program, testified before the Subcommittee on Science, Research, and Technology this year:

> Pre-College curriculum development has been that part of our R&D program receiving the most attention in the last year. In this area there are private sector suppliers and so I would like to outline the criteria which I believe should determine when and if Federal involvement is warranted. This involvement may occur if: (1) there exists a relatively low level of R&D by the private suppliers and an insufficient rate of technical progress; (2) there exist some institutional barriers to deter R&D by private suppliers; and (3) the public value of technological advance is high. (1976, pp. 14-15)

Many observers feel there still exist barriers to innovation within the private market. Rep. Fuqua of Florida responded to Conlan's contention that private publishers see no need for federal intervention:

> Finally, the distinguished gentleman from Arizona has stated that he has contacted major publishers of school

> materials and only two have come out in favor of NSF involvement in curriculum development and implementation. I have had the chance to review those publishers' responses. Additionally, the committee staff contacted a number of publishers at my request. I submit that the publishers' responses are not all that clear-cut. There appears to be honest disagreement among these publishers as to the appropriate degree of Federal involvement in this area. The publishers' responses do not overwhelmingly favor one side or the other. My reading of the responses, then, is that there is not overwhelming demand from the school book publishing industry to end federally funded curriculum development and implementation. This matter, I feel, warrants further study and cannot be used as an argument to end NSF funding of precollege curriculum development. I might add that during our hearings the National Science Teachers Association expressed considerable skepticism about the publishing industry's willingness or ability to invest in the research and development necessary to produce current material in a timely manner. (U.S. Congress, March 25, 1976, p. H2415)

Averch's comment applies specifically to curriculum development. By extension, it has been applied to implementation activities as well:

> Mr. Chairman, the National Science Foundation was mandated by Congress to develop educational programs in an innovative way and not simply to develop them and put them on the shelf but to make them available to the school boards and the school districts of the country, not to ram them down their throats, but just to show them to them. (Rep. Symington in U.S. Congress, April 9, 1975, p. H2589)

Curriculum development cannot have the desired effect of improving the school curriculum, it is said, if its products never reach the schools. The implementation activities necessary to move such innovative materials into the schools go far beyond marketing required for traditional textbooks.

> But because the market, as represented by the established curricula in the schools and, more importantly, by the preparation of their teachers, had lagged far behind the accelerating advance of science, the NSF found it advisable to commit large additional funding to "implementation" in order to assure the best return upon the thousands and then millions of dollars it was investing in the development of science curricula. (Ad Hoc Science. . . 1975, p. 2)

There is a strong tendency among consumers to adhere to established models. Familiar content and familiar instructional approaches have the competitive advantage in most situations. Just to get a fair hearing for innovative materials in comparison to traditional materials requires

substantially more of a "marketing" effort than is customary. Teachers have to receive enough training so that they come to feel comfortable with new methods and ideas and can compare them on equal footing with their customary teaching activities. Further, because the new materials are frequently much more costly to produce than traditional textbooks--new materials use a variety of media--some assistance, such as special royalty rates, is necessary just to bring the production costs down to a competitive level. No question of *undercutting* here, say proponents of federal funding.

While critics point with dismay to the example of the success of the "new math" in spreading throughout the country, defenders of federal intervention point with pride to similar examples. Peter Dow notes with regard to MACOS' impact on publishers' offerings that

> it is perhaps more than coincidental that many commercial publishers are now producing anthropologically-based materials for the elementary school, and multimedia formats are increasingly in demand. According to one reckoning, there are nearly 30 competing programs to *Man: A Course of Study* now in the educational marketplace. This is a substantial change from 1968, when publishers informed EDC that there was no call for such material in the schools. (Dow, *Social Education*, Oct. 1975, p. 396)

Supporters see such results of federal support as desirable and beneficial and as responsive to a clear expression of the national interest. They see such results as evidence that federal intervention was needed to stimulate activity in the private market place.

Federal vs. Local

Following close on the heels of the private vs. public issue is the question of federal control vs. local control of education. This part of the controversy gives a modern cast to the classic American federalist debate; the focus is on the relationship of local units, rather than states, to the national government. The issue as posed is whether the federal government is usurping local school district decision-making power and authority.

Critics argue that decisions about the public school curriculum have traditionally and rightfully been left to the local community and its representatives, the members of the school board. NSF and its projects

have attempted to exert undue influence on district employees--administrators and teachers--luring them to adopt curriculum packages that are not really wanted by their communities.

> NSF officials told our Group that 'local choices' govern use of NSF-funded curriculum programs. But this is empty rhetoric when one fully understands the implied Federal endorsement associated with such NSF funding and the overpowering coercive effect on local options when such a nationwide curriculum promotion and marketing mechanism is geared up to influence school decision-makers. (McAuley 1975, p. 7)

Among the unfair enticements is the purportedly lower cost of NSF materials in comparison to commercially developed and marketed materials. This argument, of course, connects the public vs. private issue with the federal vs. local issue. Another "lure" is NSF-subsidized teacher training in the use of particular NSF materials. Extra salary credit is sometimes given teachers who participate; hence, adoption of those materials becomes relatively more attractive to teachers than adoption of materials for which extra salary credit is not subsidized.

Such inducements cause professionals in powerful positions within school systems to lobby for NSF materials. Parents and interested citizens are often powerless against these internal advocates. The ominous potential of all this, according to critics, is a uniform national curriculum and the destruction of local autonomy in regard to education.

> Our system was not devised so that an elite corps of unelected professional academics and their government friends could run things regardless or in spite of public wants and needs. Local control of schools means local control by citizens and school officials to commission and choose particular course materials they want--not the nationwide promotion and lobbying for particular curriculum materials, using tax dollars, by EDC and NSF, with inducements for local educators to lobby local school districts to select them.
>
> . . . It's a question of stopping a dangerous trend toward a uniform national curriculum in social studies, in complete defiance of the need and popular demand for diversity in American education. (Conlan 1975, p. 392)

Defenders of NSF reply that it has never been NSF's intent and is not now, overtly or covertly, to usurp local decision-making authority. They agree that the local level is the point at which adoption decisions should be made.

> The decisions as to whether or not it [MACOS] should be taught or whether it should be elective or required are not out of the hands of the NSF and the Congress. These decisions are being made by local school systems, and I believe that this is the proper decision point. (Stever, March 17, 1975. p. 3)

MACOS supporters stress that implementation efforts by both the developer and the publisher are intentionally designed to include parents and professionals in the adopting districts and to help them understand what they are getting into when they adopt MACOS. Accordi to defenders, these are not insidious attempts to lure unsuspecting consumers into a trap; quite the contrary, they are attempts to make sure consumers are fully aware of the implications of their decisions about the materials. As Dow pointed out in one round of Congressional testimony:

> From the earliest testing days, EDC has urged school systems not to impose the course on children of parents who opposed it, and to our knowledge, most school systems have made provision for children of such parents to take alternative courses of study. In the early days, few formal efforts were made to involve parents in curriculum decision making, but in recent years, Curriculum Development Associates, Inc. has been vigorous in its efforts to include parents in the adoption process. (Dow, May 13, 1975, p. 10)

In a letter to a school principal, Dow elaborates further:

> With respect to a request to fund the implementation of *Man: A Course of Study* on a nation-wide basis, I know of no such plan. The course, as you probably know, is being published by Curriculum Development Associates, a Washington-based group that is disseminating the course largely through the collaboration of a nation-wide network of scholars and teachers interested in the program. There has been no heavy promotional effort of the program; in fact, CDA shuns advertising, and all publicity has stressed the need for school systems thoroughly to understand the philosophy, pedagogy, and content of the program prior to its introduction. (Dow, March 13, 1975, p. 2)

On a broader plane, NSF supporters suggest that NSF's development and implementation activities have not been aimed at constraining local autonomy but rather at supporting it by widening the range within which that autonomy can flourish. It is claimed that, before NSF's (and the U.S. Office of Education's) entry into curriculum materials development and implementation, the range of materials options from which a school district could choose was relatively narrow, consisting of several basic texts for each course, each of which followed pretty much the same basic pattern and contained the same basic (and often outdated) material. Supporters point

to studies such as that of Cox and Massialas (1967) as strong evidence of the insufficiencies of the existing range of materials. (Here again, the federal vs. local argument touches on the issue of the adequacy of the private market.) NSF's development activities broadened the options considerably and its implementation activities brought these new options effectively to the attention of local districts in ways that helped local decision makers make rational comparisons with the old materials. In debate on the floor of the House, Representative Wirth of Colorado brought out this function of NSF's efforts:

> [W]hat is at issue here is not what we choose to teach our children, but whether we have a choice. I believe very strongly that program decisions of this kind should be made on the local level. By continuing the MACOS authorization we are not requiring any local school board to adopt it. We are giving them the opportunity to select it. (U.S. Congress, April 9, 1975, p. H2595)

Critics respond that, sometimes, federal activity can narrow, not broaden, the options available. Weber has cited the example of the "new math" pushing out alternative, traditional mathematics programs. Critics also claim, on the other hand, that nonparticipation by the federal government will not cause a narrowing of options. Publishers can still publish and districts still select from a broad range of materials, according to Conlan:

> As the gentleman from Colorado, the gentleman from Denver (Mr. Wirth), raised the question as to whether this would keep his local school districts from having the materials, I would reply it would not. If they like it in Denver they can buy it in Denver with their own money, just as they would buy any other textbook. (U.S. Congress, April 9, 1975, p. H2596)

This, of course, does not deal with the question of whether MACOS and courses like it would ever have been made available in the first place without federal assistance. Some of the arguments in the previous section maintained that innovative courses would have been developed anyway, while other arguments stressed the barriers to development and publication.

The supporters of NSF argue, further, that supporting and enhancing local decision making is not the only justification for federal activity in curriculum development and dissemination. The federal government may sometimes have the responsibility of widening options *in certain specific directions* judged necessary to the national interest. This is quite

similar to the argument for intervention in the private market. Averch also summarized this rationale in his testimony before Congress in February of this year:

> As you know, the primary decisions about elementary and secondary education rest with about 17,000 local school districts, and our cities and states. Federal assistance may be required, if this segment of the educational market place does not deliver the quality or quantity of educational services nationally desirable, even though participants may be doing a good job with respect to their own objectives. Assistance may be required because of lack of knowledge, lack of resources, or the inability of individual participants to see, fully, the larger consequences of their decisions. When such conditions occur, the elementary and secondary school system, by itself, may not be able to respond adequately to national needs in science education. (Averch 1976, p. 2)

Dow suggests that the national interest provided justification for the exercise of federal influence over local districts in the past and that it should do so in the future.

> Ironically, the space race, which first gave us the will to reform science education after the challenge of Sputnik I, now provides us with a new symbol in the Apollo-Soyuz mission. Can the image of cross-cultural understanding thus portrayed provide the same powerful challenge to a social education that Sputnik I did for a reform in science teaching? If so, courses like MACOS may be a small beginning. Is such a goal a proper concern for our federal government? I believe so, for in the next generation our survival may depend upon investing at least as many dollars in trying to preserve the whole human race as the last has spent on destroying parts of it. (Dow, *Phi Delta Kappan*, Oct. 1975, p. 81)

Although the critics do not respond explicitly to this argument in the materials reviewed for this paper, they imply that the "national interest" is something that grows out of interests expressed at the local level. Hence, preservation of local autonomy is the proper way to discover national interest, if there be such a thing. The local districts' abilities to perceive what is good for the country should be respected.

The logical move on the part of the critics, in light of their arguments, would have been to bar all NSF curriculum development and especially implementation activities at the precollege level. That way, there could have been no question of further "undue influence" by NSF. However, Representative Conlan did not do this in the 1975 Congressional session, apparently judging that such a radical step would not get far. (He did

take the big step in the Spring 1976 session, however, proposing to bar all development and implementation activities. He was voted down.)

Instead, in 1975 Conlan introduced an amendment on the floor of the House to require Congressional approval on a project-by-project basis before any implementation funds could be awarded. This idea injected a rather odd and confusing element into the federal-local issue. The intent of the amendment was to restore purportedly usurped powers to local decision makers by keeping NSF out of most, if not all, implementation activities. But NSF's defenders noted that, although the amendment would take decision-making power out of the hands of NSF, it would not restore it to local districts. Instead, it would place decisions about whether a course could be implemented in the lap of Congress. This would be as much of an intrusion on local autonomy as the critics claimed NSF's activities were. As Congressman Wirth noted:

> Though I often agree with my Republican colleagues in concern about the involvement of the Federal Government in too many phases of American life, I am surprised at their advocacy of this incursion into what are clearly local responsibilities. (U.S. Congress, April 9, 1975, p. H2595)

Even some crticis of MACOS agreed:

> They [Representative Krueger's constituents] did not elect me to this body to make decisions for them on what they or their children read. . . .
>
> Although the values of this particular program, the MACOS program, may not be mine--and they are not--they are nonetheless values which have the right to be heard and to be judged by local school districts, and therefore, in order to keep the Federal Government from wrongly intruding upon this local decisionmaking power, which I think is where the decision on school education must be made, we should oppose this amendment. (U.S. Congress, April 9, 1975, p. H2590)

Thus, in the federal-local debate we find both critics and supporters of NSF accusing each other of interfering with local autonomy.

Experts vs. The People

This is at the same time the oldest and the most modern of the issues to surface in the NSF science education controversy. It is a question we have received from Plato: Who should rule--the philosopher (knowledge) or the demos (numbers) or some other component of the polis? It is a question with particularly acute relevance in this age of science and technology.

Critics of NSF science education activity argue for strict accountability. Scientists, professional educators, and bureaucrats should have only a tightly circumscribed role in decision-making; parents and other citizens, through their elected representatives on school boards and in Congress, must have the final say. Politics does and must dominate science.

The critics claim that NSF has stepped far beyond its Congressional mandate in its implementation activities. McAuley claims in her minority report:

> Our group found absolutely no Congressional mandate that permits the NSF to fund the type of promotional and marketing activities that have been conducted under the guise of implementation. (1975, p. 8)

And Representative Annunzio during House debate:

> We have come to learn that the NSF exceeded the boundaries of its mandate in developing and promoting the MACOS project. (U.S. Congress, April 9, 1975, p. H2588)

The critics claim that it was never Congress' intent that NSF should interfere with local decision making and the private publishing market. Further, they cite NSF's policy of allowing royalties on published materials to revert to the projects as one means NSF uses to bypass Congress and continue unmandated implementation activities (Senate Appropriation Committee Report, date and report number unspecified, cited in McAuley 1975, p. 11). An even more serious charge is that NSF officials have specifically sought to evade accountability to Congress, the people, and even the scientific and educational professions. Conlan accused NSF officials of "shocking mismanagement and manipulation of the NSF grant award process" and an attempted coverup of this in regard to the ISIS project. (U.S. Congress, March 25, 1976, p. H2391) Critics even argue that NSF itself has abdicated its own responsibility for oversight of its projects, thus compounding the agency's lack of accountability to Congress:

> The lack of NSF monitoring in education programs is the clearest illustration we have of NSF's complete abdication of responsibility for the stewardship of Federal funds and its lack of accountability to the American people for controversial--even offensive--ideas and subject matter being promulgated in our children's classrooms. (McAuley 1975, p. 14)

This alleged exceeding of the Congressional mandate has insidious implications. It is indicative of NSF's sponsorship and encouragement of

an elite group of "career curriculum innovators" who are seeking to take over American education. As Conlan states in defense of the amendment he presented on the floor of the House on April 9, 1975:

> My amendment is designed to reassert congressional authority over NSF curriculum activities to stop what is shaping up as an insidious attempt to impose particular school courses and approaches to learning on local school districts--using the power and financial resources of the Federal Government to set up a network of educator lobbyists to control education throughout America. (U.S. Congress, April 9, 1975, p. H2585)

Or as McAuley's minority report states in its findings:

> The National Science Foundation is supporting "career curriculum innovators" whose objectives go far beyond NSF's legislative mandate to help improve science education. (1975, p. 4)

She elaborates:

> The Majority Report did not examine the implications of NSF's embarking upon another multi-million dollar EDC venture to develop, promote, and market nationwide a high school sequel to MACOS, "Exploring Human Nature" (EHN).
>
> A clear pattern is evolving among the "career curriculum innovation" centers being funded by NSF, whereby high-cost elementary programs designed to restructure nationwide education methods and objectives are almost automatically followed by equally expensive and far-reaching value-laden programs designed for intermediate and high school students.
>
> . . . the Majority failed to deal with the problem of the "career curriculum innovation" centers and their growing dominance over the entire U.S. education system.
>
> My extensive review of many multi-million dollar NSF curriculum programs shows that there is a small cadre of curriculum innovators who repeatedly receive Federal support for different programs year after year, and that they frequently participate in each other's conferences leading to new NSF programs and serve on each other's advisory and steering committees.
>
> Most disturbing is the fact that several members of the key NSF Advisory Committee on Science Education, which participated in the internal NSF curriculum review, have a personal interest or involvement in major ongoing NSF curriculum programs, raising a serious conflict-of-interest situation that neither the NSF internal review team, the General Accounting Office, nor this Group have seen fit to question or explore. (1975, p. 6)

Social engineers, experimental psychologists, and other experts are running roughshod over the wishes of parents and the rights of children, leaving in their wake "frightening functional illiteracy, and social and moral confusion," according to Conlan. He quotes from a letter he received from a constituent:

> Schools have become the arena for the productions of social and behavioral scientists, to whom progress is all too synonymous with change and reform. Schools are the scene of all sorts of quasi-experimentation and, I am tempted to add, exploitation. At times it seems that the child and parent, whose interests should be primary, are in danger of becoming mere grist for the mill of the educational program and theory. . . .
>
> The public has meekly, even proudly met the astronomical costs, approved new bond issues and paid the taxes. Yet today we are confronted with increasingly bitter evidence that our schools are failing in large degree to teach basic knowledge or skills, and their social efficacy is deteriorating rapidly and tragically. (Conlan 1975, p. 390)

George Archibald, Conlan's assistant, summarized the charge--both its content and its tone--at a recent conference:

> [W]e have been plagued by the tax-supported "career curriculum innovator"--the educationist turned professional grantee, who has finetuned the acquisition of taxpayer dollars into obscene rip-off artistry. . . . To these people, public need and a quality product seem to mean practically nothing. (Archibald 1976, p. 4)

Defenders of NSF respond to the charge of exceeding the Congressional mandate with the counterclaim that Congress has, all along, known about and encouraged NSF's implementation activities.

> [I]t should be no surprise on anyone's part that NSF is in this kind of precollege (elementary and secondary school) science course development and implementation. . . . The Congress, responding to recommendations from different segments of the educational and scientific communities, has long encouraged us in this kind of science education venture. (Stever, March 17, 1975, p. 2)

They cite passages in past committee reports that refer quite explicitly to the kinds of activities NSF has proposed to fund in science education (see, for instance, U.S. Congress, April 15, 1974, pp. 97-99). Even Teague, Chairman of the House Committee on Science and Technology, recognized in debate that NSF had been "pursuing the committee-recommended policy relating to implementation. . . . He pointed out that Congress had authorized implementation because

> It was our feeling that much of the excellent material produced under Foundation grant was not being fully utilized due to NSF sharply curtailing its efforts once the curriculum had been developed. (U.S. Congress, April 9, 1975, pp. H2579-H2580)

In reply to critics' claims that an elite group of experts is conspiring to impose its minority views on the majority, the supporters

protest that their views are not at odds with the majority of people in this country. They are not manipulating the democratic process and ignoring democratic principles; they are, in fact, responding to what the majority has said it wants." The curriculum innovation movement began in response to the public outcry about the time of the Soviet launching of Sputnik; and it continues because most of the citizens concerned about education in this country have found it valuable to have experts involved in curriculum construction. The defenders cite evidence such as the fact that only a very few of the 1,700 school districts using MACOS have experienced controversy over the course. Representative Fuqua cites a survey of parents in districts using the Individualized Science Instructional System (ISIS), another of the NSF-supported projects under attack:

> A committee survey of ISIS trial centers--those school systems field testing the draft ISIS materials, about half at their own expense--has shown that there is not great parent and student objection to so-called value-biased materials. (U.S. Congress, March 25, 1976, p. H2415)

It is the critics who represent a minority view, according to NSF's supporters; it is the anti-NSF group who are trying to impose a minority view on the vast majority of citizens of this country. The majority recognize the need to improve instruction in science and to examine the values of other cultures and our own in schools; and the majority recognize that improvement cannot occur without substantial participation by the experts.

In short, supporters deny that there is, on the whole, a problem in the relationship between the "experts" and the "people" in the area of education. "Knowledge" or "wisdom" (the philosopher king?) is in this case in tune with "numbers" (the demos).

The critics have sought to solve the perceived problem by extending Congressional oversight of NSF. Conlan's proposal to have Congress review and approve each implementation project prior to funding by NSF reflected the fear of a scientist-professional-bureaucrat takeover.

> I do not think we have the slightest idea of what is going on in the bureaucracy or of what is being pulled by bureaucrats under preselection arrangements, and if we do not show some kind of accountability here--and this is no reflection on the committee--I think it is time that we do that. (U.S. Congress, April 9, 1975, p. H2605)

Much of the debate on Conlan's amendment focused on practical considerations--whether Congress was capable of handling such detailed review. But another significant portion of the debate dealt with the philosophical tangle of censorship versus accountability, a key problem in the expert-vs.-the people issue.

Representative Symington criticized the amendment:

> What the amendment does is to make of the Committee on Science and Technology and the Committee on Labor and Public Welfare of the Senate a joint committee of censorship to determine the validity, the usefulness, the propriety of the curriculums of educational programs developed by the National Science Foundation. (U.S. Congress, April 9, 1975, p. H2589)

Representative Mosher connected the federal-local issue with the expert-people issue in charging the amendment was a form of thought control:

> Mr. Chairman, I am shocked, really, that the gentleman from Arizona (Mr. Conlan), whom I think of as responsibly and philosophically in the conservative tradition, would propose what is essentially thought control and totalitarian acceptance of curricula. These matters should be determined strictly at the local elected school board level. (U.S. Congress, April 9, 1975, p. H2590)

Outside of Congress, Dow made a similar point:

> In short, we at EDC view the controversy surrounding *Man: A Course of Study* as an issue of academic freedom. Should Congress, as Congressman Symington asks, have the right to decide what is suitable for teachers to teach and children to learn? Should freedom of access by educators to the fruits of academic scholarship and educational research be limited by the views of a single constituency? In our view, it is the prerogative of local school boards, parents and community groups, and professional educators to determine the suitability of materials like *Man: A Course of Study*, free from constraints imposed by federal legislators who would limit dissemination of a program that has already proved its worth in hundreds of classrooms across the country. . . . We believe that Congressman Conlan's attack represents an assault upon the freedom of educators that borders on an infringement of their Constitutional rights. As David Schimmel writes in the April 1975 issue of *Social Education*, . . ."[Recent court] cases illustrate . . . the dramatic expansion of freedom of expression in the public schools during the past decade. State and federal judges throughout the country are now applying the Supreme Court's dictum that neither students nor teachers shed their Constitutional right to freedom of expression at the schoolhouse gate." (Dow, April 4, 1975, pp. 2-3)

Further, Gerard Piel, publisher of the *Scientific American*, added an odd twist to the censorship argument, connecting it to the notion of protection of the private sector:

> While our first President was still in office the Congress frustrated him in one of his dearest projects: to establish a national university in what was to be Washington, D.C. The American people have always been jealous of the independence of their educational institutions and fearful that Federal control might follow Federal funding. In setting up the National Science Foundation, Congress undertook to provide funding to scientists and institutions in the private sector, and it created a National Science Board to act, among other things, as an insulator between the Government and the private sector. The choice of recipients of NSF grants has been wisely delegated to peer-review groups recruited from the private sector, and the judgment of excellence before and after the making of a grant reserved to those private citizens. Both Congress and the Executive Department, in observance of our historic traditions, have kept Federal hands off the content and substance of research and educational enterprises financed by NSF grants. (Piel, May 19, 1975)

The critics protest that what they are proposing is not censorship but oversight--a means of providing accountability.

> I do not want to censor books, but I do have a responsibility to my constituency that their money be wisely spent in the development of programs. . . (Rep. Ketchum in U.S. Congress, April 9, 1975, p. H2594)

> The fact of the matter is that what we are talking about here is the spending of Federal tax dollars. That is the issue. . . .
>
> I think that we, as Members of the Congress, not only have a right to examine it; I think we have the duty to do so. (Rep. Wydler in U.S. Congress, April 9, 1975, p. H2590)

As James J. Kilpatrick, the columist succinctly stated it:

> I think the liberals are wrong [to claim Conlan's outcries are censorship]. If the NSF isn't accountable for spending our money on MACOS, who in the world is? (1975, p. 4)

In an exchange with Conlan on the floor of the House, Representative Martin went a long way in clarifying the terms of the argument. He suggested that refusal of the government to subsidize a particular course of study is not the same as outright suppression--censorship--of that course.

> The issue of censorship and thought control has been raised several times during this session. I would like to ask the gentleman a couple of questions because it was my understanding that what he is asking us to do is exercise a little discretion as to what we subsidize with Federal tax money.

> I would ask, does the amendment as offered prohibit anyone from in any way promoting or selling this educational material or any other educational material to the public school system?
>
> Mr. CONLAN. No, this does not in any way prohibit a local school board from buying any kind of school materials that they want that are available from a private publisher.
>
> Mr. MARTIN. Then if it does not prohibit that, it would seem to me that in that sense of the word "censorship," it would constitute in no way censorship or "thought control" of this or any other imaginative pedagogy, or deprive it of the right to be heard. In a different sense, then, if we were to accept the more strained argument that it is censorship to cut off the subsidy from a political philosophy or from a particular text material, or to deny it a subsidy, and thereby that that actually constitutes censorship, then would not it be true that if a government singles out certain text material for subsidy and declines to subsidize others, then that would be, in effect, denying them that equal right and, therefore, subjecting the unsubsidized text materials to "censorship" under the loose definition being bandied about by the opponents to your amendment? (U.S. Congress, April 9, 1975, p. H2593)

The critics go even further and countercharge that the proponents of the NSF science education program are promulgating their own brand of thought control. Conlan warns:

> Many educators, including an anthropologist at Cornell University originally associated with the MACOS project, have condemned the course as imparting a dishonest view of man. They say it is a "brainwash," stifling academic freedom of teachers and the development of children. These educators view the federal government's role to promote MACOS and other curriculum programs as an ominous move toward a uniform federal standard in education. (Conlan 1975, pp. 388-89)

And Kilpatrick:

> Is it wise for the federal government, through NSF or any other agency, to commission the writing and promotion of any textbooks at all? Is this not an ominous echo of the Soviet Union's promulgation of offical scientific theory?. . .
>
> . . . For my own part, I am repelled by the manipulative theories of such behavioral scientists as Bruner and B.F. Skinner. Skinner's stuff gives me the creeps. But even if they were propounding sound doctrine, they would have no right to pursue academic freedom with the people's money. Once the notion is accepted that government has power to commission and to subsidize textbooks in social science, we move a significant step down the road to 1984. (1975, p. 4)

Thus we find each side charging that the other is a minority endeavoring to impose thought control on the majority. Critics are saying that an

elite minority of scientists, professional educators, and bureaucrats are practicing thought control by subsidization and promotion: using taxpayer dollars to promote the manipulation of children's minds into alien ways of thinking and valuing. Defenders are saying that a small but well-organized band of critics are attempting to practice thought control by suppression: censoring certain ideas that are not in accord with their own.

Scientific Values vs. Traditional Values

This issue is the real heart of the controversy. It was parent concern over the value content of MACOS that initially impelled Conlan to take the MACOS question to the Congress. And the confrontation between "scientific" values and "traditional" values has remained the core issue throughout the debate.

Essentially, the "traditionalists" are alarmed by those aspects of scientific values that allow for--in fact, encourage--critical examination by youngsters of long-cherished American religious, social, and political values. The "party of science," on the other hand, sees the encouragement of critical examination (positive and negative) of all phenomena as a principal virtue of science. The counterposition of the labels, "traditional" and "scientific," however, does not indicate that the author believes that the positions are simple and clearcut. Certainly "traditionalists" respect scientific values (in one sense, scientific values are thought of as part and parcel of our American heritage) and certainly those who emphasize scientific values do not do so to the exclusion of traditional American values. The labels "traditional" and "scientific" were chosen to indicate what appears to be at the center of each position, with recognition that the terms do not adequately render the full compass of those positions.

The tradition-versus-science issue is, in the author's view, the core issue in the sense that it is what the participants in the debate would most like to discuss and decide upon. However, the debate has time and again been diverted to the three procedural issues previously described, for there are certain elements of our pluralist tradition that inhibit forthright discussion of and decisions about competing value systems. But what the controversy is really about is what values are going to be taught in the schools.

The debate over the three procedural issues reflects various attempts and counterattempts of the opposing camps to set up processes that will produce a favorable outcome for their particular sets of values. The parties to the controversy cannot simply take a vote in Congress on which values are to be taught, for that would go against the pluralist tradition of allowing a multiplicity of value systems to flourish.

Joanne McAuley shows a partial understanding of this problem when she states in her minority report that

> So long as the NSF engages in curricula which are value-laden and subjective rather than objective, such as those elements found in the social sciences, and to the extent that NSF plans to bring the physical sciences into this political/social mode, NSF is using taxpayer dollars to engage in an inherent political act to "politicize" all classroom teaching, and the MACOS controversy will only be the beginning. (1975, p. 4)

What McAuley does not go on to say is that *all* curriculum is to some extent value-laden, even the kind she advocates. Curriculum is and always has been "politicized."

The proponents of "traditional" values object vigorously to some of the content of the student and teacher materials of MACOS:

> Mr. Chairman, MACOS materials are full of references to adultery, cannibalism, killing female babies and old people, trial marriages and wife-swapping, violent murder, and other abhorrent behavior of the virtually extinct Netsilik Eskimo subculture the children study.
>
> Communal living, elimination of the weak and elderly in society, sexual permissiveness and promiscuity, violence, and other revolting behavior are recurring MACOS themes.
>
> This is simply not the kind of material Congress or any Federal agency should be promoting and marketing with taxpayers' money. (Conlan in U.S. Congress, April 9, 1975, p. H2585)

By examining the values and behavior of the alien culture of the Netsilik Eskimos in a favorable light, MACOS teaches children cultural and moral relativism and leads to the moral confusion we witness today among young people (Conlan 1975, pp. 390-391).

ISIS is equally bad; Conlan characterizes it as "a collection of value-oriented 'minicourses' designed to replace the traditional teaching of physical science subjects in high school" (U.S. Congress, March 25, 1976, p. H2391). And the Biological Science Curriculum Study's *Human Sciences Program* is another offensive NSF product:

> Like MACOS, the "Human Sciences Program" is a sophisticated and lethal assault on Judaic-Christian family values, privacy of students and their families, and the mental health and development of young adolescents. (Conlan in U.S. Congress, March 25, 1976, p. H2391)

Not only is the content of such courses objectionable; also the instructional methods are of the type associated with "brainwashing."

> Many educators, including an anthropologist at Cornell University originally associated with the MACOS project, have condemned the course as imparting a dishonest view of man. They say it is a "brainwash," stifling academic freedom of teachers and the development of children. (Conlan 1975, p. 388)

One critic has wrongly associated the behavior modification techniques of B. F. Skinner with MACOS:*

> [MACOS] was designed by a team of experimental psychologists under Jerome S. Bruner and B. F. Skinner to mold children's social attitudes and beliefs along lines that set them apart and alienate them from the beliefs and moral values of their parents and local communities. (Conlan in U.S. Congress, April 9, 1975, p. H2585)

Contrary to the claims of the developers, the critics say, MACOS and courses like it *do* indoctrinate children:

> [T]here is an air of indoctrination about [MACOS]. Although there are a number of references to getting the children to think about various questions, a thorough examination of the teacher's guides suggests that the authors have definite ideas about what conclusions the children should come to. There is an underlying assumption that young children must be made to understand that cultural relativism and environmental determinism are the only "scientific" answers to the place of man in society. There seem to be many other "correct answers" in the material. (Weber 1975, p. 82)

Many potentially dangerous behavioral techniques, such as role playing and open discussion of feelings, are used to mold the children's minds, in complete disregard to their human rights:

> Courses like Human Sciences Program . . . turn classrooms into gigantic gossip mills where everyone's personal attitudes and behavior are recorded in school files for open discussion and dissemination by anyone (Conlan in U.S. Congress, March 25, 1976, p. H2391).

Children are taught the skills of good little totalitarians:

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*B. F. Skinner was not associated with MACOS and his behavior modification notions did not form the theoretical basis for learning strategies in the program. Jerome Bruner, a developmental psychologist with an orientation quite distinct from Skinner's, was the "father" of MACOS.

> Instead of learning through normal methods of reading and teacher lectures, 11-, 12-, and 13-year-olds enrolled in the "Human Sciences Program" become little investigators and opinion pollsters collecting all manner of data on their families and friends concerning social, moral, religious, economic, and political activities and beliefs. (Conlan in U.S. Congress, March 25, 1976, p. H2391)

Some critics think that such content and methods might be acceptable to use with older children but it is dangerous to use them with younger children.

> [Ten]-year-olds are too young to face explicitly such profound questions about man and society. Most of them know little about their *own* society at that age. At 16 or 18 they are far better prepared to deal with these matters. For fifth-graders, the first steps away from ethnocentrism might better be made through the study of history and the general study of contemporary foreign peoples. (Weber 1975, p. 82)

> The exposure of children during their formative years to these vagaries of other civilizations and cultures without appropriate perspective constitutes a condemnation of the moral standards of the Judeo-Christian culture which have made this Nation so great. (Rep. Annunzio in U.S. Congress, April 9, 1975, p. H2588)

Critics are not only concerned about the potential of MACOS and similar materials for alienating children from parental and community values. They are also concerned about the possibility of emotional damage to children who are subjected to the materials.

> NSF has completely failed to protect children from emotional damage from NSF-funded curriculum programs. NSF adopted the U.S. Department of Health, Education, and Welfare's "Policy on the Protection of Human Subjects" in about 1971. This policy clearly requires NSF to ensure that no education program will subject students to psychological, social, or other harm. The policy further requires NSF to provide a mechanism for evaluation of the curriculum program at every stage of development to guarantee the protection of individual subjects who will be exposed to it at any time.
>
> . . . It has been said that most teachers have very little, if any, qualifications to employ such techniques and handle the human dynamics of children generated by MACOS materials and activities. Obviously failure of NSF and local school districts to faithfully execute the NSF's adopted "Policy on the Protection of Human Subjects" could open school officials, teachers, and NSF itself to possible litigation on a massive scale. This would apply to all value-oriented curricula employing behavioral techniques. (McAuley 1975, pp. 15-16)

No suggestion is made that traditional materials be subjected to the protection policy. The implication is that traditional materials do not have potential for emotionally damaging children.

Finally, critics ask us to consider what has to be knocked out of the existing curriculum in order to make room for MACOS and other non-traditional courses:

> [S]chool officials and parents should be concerned with what is thrown out of the curriculum in order to make room for this year-long course. Fifth- and sixth-graders usually study American history, the Middle Ages, or ancient civilizations. The loss of one year of American history would not be very important, because this subject is studied several times in elementary and secondary school. But if the Middle Ages or ancient civilizations are being discarded, that is one more reason why *Man: A Course of Study* should not be used with this young age group. (Weber 1975, p. 82)

> Mr. Chairman, the children have not learned world history, they have not learned economic geography, and they cannot understand the basic conflicts going on around the world, but yet they are planning to study a subculture group with only 30 or 40 people in it. That is a culture that is so low that even the other eskimos do not want to associate with this clan. (Conlan in U.S. Congress, April 9, 1975, p. H2593)

The result of such displacement of traditional courses in math, science, and social studies by innovative NSF-sponsored courses is "millions of children who appear to be functionally illiterate in math, and woefully ignorant of basic facts in history, geography, private enterprise economics, U.S. government, and so forth" (McAuley 1975, p. 11).

In all, critics accuse NSF and the elite minority with attempting the "restructuring [of] the Nation's entire pre-college science curriculum with a value orientation in all subjects." (McAuley 1975, p. 4). There is a fear that children will be drawn into acceptance of un-American, unchristian ways of thinking and valuing.

Supporters of "scientific" values counter by arguing it is appropriate to raise value issues so that children can examine their own values thoughtfully and learn to cope with an interdependent, multicultural environment. The value issues raised are ones that confront us all day-in, day-out; what would be truly disastrous is never examining them.

> Much has been said in the current discussion about the dangers of exposing young children to alleged issues of

> adultery, bestiality, cannibalism, infanticide, and senilicide in the MACOS materials, but these horrors are in fact the daily fare of our television screen and are shown presumably with no larger purposes than to "entertain" millions of viewers who daily gawk over lurid scenes of man's inhumanity to man without ever being asked to contemplate the relationship between these behaviors and our elusive search for human understanding. In contrast, MACOS may raise troubling questions about the significance of killing, the importance of the partnership between male and female, and the moral dilemmas all societies face in caring for the very young and the very old; but these questions are always considered in the context of what they tell us, or fail to tell us, about how humankind can better understand itself and thus improve its plight. (Dow, *Phi Delta Kappan*, Oct. 1975, p. 80)

Congressional supporters argue that "the time for know-nothingism has long since passed" (Rep. Symington in U.S. Congress, April 9, 1975, p. H2589). It is a positive good to open up value issues within our society for inquiry. For instance, we should not "try to pull a cosmetic shade over the violence we are required to commit in order to eat and live" (Symington in U.S. Congress, April 9, 1975, p. H2589). The vivid MACOS films of the Netsilik hunt and butchering of the kill do not show anything substantially different from the killing and butchering of farm animals in our culture. And it is a positive good to examine values and practices in other cultures:

> My impression is that a misinformed national consciousness concerning other races and other peoples has been in part responsible for our participation in wars and other mistakes simply through want of understanding of how other races and cultures live and how other peoples gather themselves together to meet the problems of life. To broaden the perspective of the young citizen in this regard improves the judgments he will make both for his own and the country's benefit. (Symington in U.S. Congress, April 9, 1975, p. H2596)

Some supporters agree with critics that certain values are advocated in the new materials in preference to other values. They do not agree with critics, however, that these value preferences are at odds with the values of most people in the United States. Representative Mosher saw in the MACOS materials as much potential as in traditional materials for strengthening American values:

> The materials to which the gentleman from Arizona particularly refers have to do with the customs and the mythology of the eskimo tribes. These are in every respect very similar to some of our own traditional myths and fables. There is, in my

> opinion, absolutely nothing in these materials that cannot equally be found similarly in Grimm's Fairy Tales and in Aesop's Fables, scattered throughout the Bible, in the Odyssey, and in many of the other traditional stories that are so familiar to us, and, as the gentleman from Missouri, Jim Symington, has said, in the lives of the pioneer farmers, the basic civilization in which we are rooted.
>
> Mr. Chairman, the principal impact of these eskimo fables, as I have read them, is to impress upon youngsters and on other members of the family unit the fact that members of a family must hang together and must be interdependent. That seems to me to be a lesson that our society today could well learn. (U.S. Congress, April 9, 1975, p. H2589)

Representative Wirth argued that the values taught by the Human Sciences Program (HSP) and others like it are values "which the citizens of this country hold most dear":

> Mr. Chairman, I would also like to comment on my distinguished colleague's assertion that the human sciences program is value laden. [The project director noted that the values inherent in HSP] are "critical thinking, autonomous learning, assumption of responsibility, cooperative efforts in classroom endeavors, shared managerial responsbilities between student and teacher for the classroom environment, decision-making, evaluation of data, dealing with problems, self evaluation of individual performance, scientific approaches to problem solving and value judgments based on evidence." The panel agreed with the project director in this statement.
>
> Mr. Chairman, I contend that if the gentleman from Arizona objects to values such as these, then he is objecting to those values which the citizens of this country hold most dear. In these values lay America's hopes for the future. (U.S. Congress, March 25, 1976, p. H2414-5)

Dow has cited several evaluation studies as evidence that MACOS does not have the detrimental effect of alienating youngsters from societal values:

> In a nationwide evaluation in over one hundred classrooms during 1967-68 under the direction of the head of the Harvard Office of Tests, we learned that children, when asked what they learned about human behavior from the course, most often stressed the qualities of interdependence; responsibility for self, family, and society; persistence; ingenuity; initiative; and capacity for survival. . . . In a later study by David Martin that looked specifically at the issue of ethnocentrism, *Man: A Course of Study* students were shown to make significant positive gains, when compared with control groups, in their willingness to accept other cultures while retaining strong, positive attitudes toward their own culture. (May 13, 1975, p. 8)

To charges of indoctrination and manipulation of young minds, defenders say their intention is exactly the opposite. It is the more traditional materials that indoctrinate; the new, science-oriented materials attempt to open up student inquiry, in accord with the values of science. The only antidote to biased curricula is teaching students thinking skills that will enable them to make warranted judgments about what they read--including their textbooks. Teaching thinking skills is what the new materials try to do, and so much the better if they do it effectively! One must not confuse effective instruction with brainwashing. Effective instructional methods do indeed result in changes in behavior and understanding, but not at the expense of closing off inquiry. The instructional approaches used in the new materials do not result in blind acceptance of whatever the teacher or materials tell the children, as would true brainwashing and indoctrination.

The instructional techniques employed by the new curricula and the skills taught the children are not of a totalitarian ilk, say the defenders. They are legitimate tools of pedagogy, science, and philosophy. Wirth responded to the accusation that children were taught to spy by pointing this out:

> Mr. Chairman, I would like to briefly comment on two other misdirected criticisms leveled at the course. The first is that HSP instructs children in the art of surveillance. Mr. Chairman, I assert that there is a great distinction that must be made between surveillance and observation. HSP is, after all, a science curriculum, and the features which characterize science in the firstplace are observing, questioning, describing, speculating, interpreting, valuing, choosing, verifying, comparing, and experimenting. If we eliminate these features entirely from science curricula, we are not teaching science. (U.S. Congress, March 25, 1976, p. H2414)

The supporters of NSF science education have not responded directly, in the current debate, to the critics' claim that innovative courses are replacing courses that deal with more important content and, hence, American children are less and less able to handle "the basics." However, part of the rationale of the "new social studies" movement was that content traditionally considered basic was no longer basic to coping with the changing conditions of a technological, multicultural society. Hence, the defenders would undoubtedly argue that it is high time for a change in our conception of "the basics" and it may be a good thing that

traditional courses are being edged out by the new. Further, they would point out that from their point of view, the "edging out" is not proceeding fast enough; whatever the causes of the recent decline in test scores and alleged moral confusion, little of it can be blamed on innovative curricula that are still far from being taught in all the districts in the country.*

In sum, defenders do not see the new curricula as promoting values that are at variance, on the whole, with parental and societal values. Neither do they become alarmed in those instances when their materials stimulate a questioning and possible rejection of traditional values. In fact, they see such questioning as a positive value in itself, opening the door to growth and change in values as conditions change. In the eyes of defenders, the scientific value of open inquiry should rightfully supercede traditional values, for it helps us understand those values and change or strengthn them when necessary. In this sense, the supporters indeed would like to "impose" scientific values on the schools, for, in their eyes, those procedural values can keep us from unjustifiably imposing other, substantive, values on the schools.

Summary of the Positions

Thus, the critics of NSF science education activity have combined preferences for private market mechanisms, local decision making, the dominance of politics (in the best sense of the word) over expertise, and the superiority of "traditional" values over "scientific" values. In response, the supporters have combined preferences for selective public intervention in the private market, some strategic federal educational activity, a significant role for expertise, and the dominance of "scientific" values over "traditional" values.

*Based on studies by Switzer (1974) and Turner and Haley (1975), it seems safe to say that "new social studies" materials are being used in well under a third of the social studies classrooms in the U.S. For any one particular curriculum package, the extent of use is much smaller.

The Events

Spring 1975

The MACOS controversy became a national controversy on March 6, 1975. On that day Representative John Conlan of Arizona moved that the 37-member House Committee on Science and Technology amend the NSF authorization bill by removing funds for support of further development and dissemination of the MACOS curriculum. After a vigorous debate, the motion was narrowly defeated, 16-13.

The Committee did, however, take two actions. First, it directed the General Accounting Office to review certain aspects of the MACOS project. Second, it directed H. Guyford Stever, the Director of the Foundation, to respond to the concerns about MACOS that were raised during the Committee meeting. Stever listed these in his letter of March 17 (Stever 1975) to Olin E. Teague, Representative from Texas and Chairman of the Committee:

1. Is the scientific material truthful and factual?
2. Is it a proper collection of material for fifth and sixth graders?
3. Who should decide that question?
4. Do teachers carry the class discussion far afield from the content of the recommended material?
5. Has the NSF followed proper contracting procedures in the development and implementation of MACOS?
6. Does the NSF go too far in implementation of precollege science education courses?
7. What evaluation procedures are proper for MACOS and similar courses?
8. Has NSF had a broad enough examination of the total coverage of its precollege science course developments?

Stever indicated the Foundation's intention to review these questions more closely in the near future, but provided brief responses in his letter. He stated that one definite decision had already been taken by the Foundation

> that, regardless of what action is taken by Congress, no further 1975 funds will be obligated for MACOS, and no 1976 funds, if authorized and appropriated, will be obligated either for MACOS or any other precollege science course development and implementation until we have conducted a thorough review of the NSF effort in these areas and reported to the National Science Board and Congress with recommendations.

He noted that he would appoint an internal review committee to report to him.

On March 19, the Science and Technology Committee took up the issue of MACOS funding again. This time, the Committee members had had a chance to review the materials and communicate with some constituents. There appeared to be a significant shift of sentiment toward greater support of MACOS in this debate; but, while two votes were taken during the course of the meeting, neither of these definitively indicated support or lack of support for MACOS. By the end of the meeting, it seemed likely that Conlan would take his amendment to the floor of the House.

Shortly after the March 19 debate, Education Development Center began marshalling its defenses. On April 4, EDC's Social Studies Program Director, Peter Dow, sent "An Open Letter to Friends of *Man: A Course of Study*" to teachers, social scientists, university educators, and others who had been involved with and supportive of MACOS in the past. The letter explained the controversy that had arisen and urged readers to contact their congressmen. It contained several enclosures that presented arguments in defense of the program. Many MACOS supporters took up the banner and wrote their congressmen. Later on, Dow prepared a point-by-point response to each of the charges Conlan had made against MACOS: "cruel murder of old people," "female infanticide," "killing and gory butchering of animals in full and vivid color," "sex education is being subtly taught," "murder and cannibalism," "divorce and trial marriage, polygamy and polyandry, and wife swapping," "religion is treated as a myth," "evolution is being taught as fact," "murder and revenge," "bestiality," "many psychological devices are used throughout the course, including role-playing," and "students are required to collect and use data, including secret observation. Children are pressured to bare every emotion and all private thoughts and actions of them and their parents." (Dow, June 30, 1975)

By early April, the MACOS controversy was also finding its way into the professional and mass media. The March 31 issue of *The Chronicle of Higher Education* carried a one-page article entitled "Social-Science Curriculum Under Fire in Congress" (Boffry 1975) and James J. Kilpatrick's nationally syndicated column took its first notice of the controversy ("Taking Significant Step Down the Road to 1984," *Boulder Daily Camera*,

April 2, 1975, p. 4). At least one television station, WRC-TV in the Washington, D.C. area, was ready to air a series of shows examining the MACOS materials and the controversy over them.

On April 1, after discussing the controversy with the National Science Board, Stever sent a second letter to Chairman Teague. He reported that the Board affirmed several general policies in science education: "that the NSF role is that of selecting science course development projects which are believed to have significant promise of strengthening science education"; that "it is up to local authorities, not NSF, to decide what course materials should be taught"; that "NSF has a responsibility to help science teachers at all levels become acquainted with a variety of materials," not just those funded by the Foundation; and that material developed under NSF auspices should contain an express disclaimer of NSF endorsement. The Board also made decisions not to rescind implementation grants already awarded for MACOS and not to send cautionary notices to all school districts in the country. Finally, the Board approved Stever's suspension of further FY 1975 development and implementation funds and the setting up of an internal review committee. Stever noted that the committee would be assigned the task of reviewing precollege curriculum development activities in general, not just MACOS, and that the committee would be asked to look into procedural as well as substantive questions. The letter contains an outline of the report to be made and the names and positions of the committee members.

On April 9, the National Science Foundation's authorization bill (H.R. 4723) came to the floor of the House of Representatives. The debate on the bill runs for 33 pages in the *Congressional Record* (Vol. 121, No. 54, pp. H2575-2607), much of which focuses on the Foundation's role in science curriculum development and implementation. (Two other major foci of debate were the issues of "frivolous titles" on research projects and peer review of both research and education proposals. The peer review issue eventually became partially mixed in with the science curriculum issue.)

The major portion of the debate on NSF's curriculum development and implementation activities was kicked off by Conlan's introduction of an amendment to bar any funds for NSF curriculum implementation or marketing

without specific Congressional approval of each proposed project. The subsequent debate reflected how the controversy had overflowed its initially limited focus on the MACOS materials. Fundamental questions of values and the democratic constitution of government began to surface, as noted in the previous section on issues.

Eventually, the Conlan amendment was defeated by a vote of 215 to 196, with 21 not voting. Immediately following the vote, Representative Gary Myers of Pennsylvania offered a second amendment, to bar funds for implementation unless the Foundation, the grant recipient, or school board involved first gave notice to the community concerning the contemplated introduction of the curriculum, and unless the curriculum were made available for public inspection before deciding on adoption. After considerable less debate than on the Conlan amendment, the Myers amendment failed, too, 341 to 68, with 23 not voting. Myers offered another amendment, calling only for the inspection proviso of his previous amendment, which was agreed to without debate.

Finally, Representative Bauman offered an amendment giving the House the power to veto any specific grant made by the Foundation within 30 days of NSF's grant decision. Essentially, the Bauman amendment was the inverse of Conlan's previous proposal, giving Congress veto power instead of approval power over specific grants. This amendment passed, narrowly, by a vote of 212 to 199, with 21 not voting.

This was far from the end of the matter, however. The Science and Technology Committee had earlier directed Chairman Teague to appoint a special committee of citizens to review NSF's science curriculum implementation activities and policies. In early May, Teague sent letters appointing nine persons to be on the Science Curriculum Implementation Review Group, as it came to be called. They included a former Congressman, a science journal and textbook publisher, an assistant to the U.S. Commission of Education, an engineer and former NASA official, two housewives and mothers, and two university chancellors. The Review Group's charge was to report on the question of whether the Foundation had gone beyond its Congressional mandate for implementation activities and was marketing curriculum materials. It was to report to the Committee no later than May 31, a deadline that it did not make.

On May 13, Dow presented a paper to the Science Curriculum Implementation Review Group--the "Teague Committee"--entitled "'MACOS' Revisited: A Commentary on the Most Frequently Asked Questions About *Man: A Course of Study*." The "most frequently asked questions" to which Dow responded included: "What is *Man: A Course of Study*?," "What happens to children in this course?," "What happens to teachers?," "What do parents think of *Man: A Course of Study*?," "Why was it so difficult to find a publisher?," "What about the costs of the program?," and "What about Jerome Bruner? How did he become involved with *Man: A Course of Study* and what were his motives?"

On the same day, the Senate considered the NSF authorization bill. It threw out the Myers inspection provision and the Bauman grant review and veto amendment. Also, it directed the Foundation to conduct a comprehensive study of how members of the public can be involved in NSF's program and policy formulation, development, and execution. Over the summer the House reconsidered the amended bill and a conference committee ironed out differences. (U.S. Congress, 89 *Stat.* 431; U.S. Congress, July 30, 1975)

Later in May, the Foundation's internal review team published its report, *Pre-College Science Curriculum Activities of the National Science Foundation: Report of Science Curriculum Review Team* (Science Curriculum Review Team 1975). The first of the report's two volumes contained the team's findings and recommendations. The summary of findings included six statements (p. v):

- The program has been instrumental in bringing about a major change in the content of science teaching materials at the pre-college level
- No comprehensive review of future needs for pre-college curricula has been carried out, although there has been extensive change in the national situation with respect to these curricula
- There is a need for substantial reexamination of the policy framework for this program
- Project management decisions conformed adequately with policies, procedures, and practices in effect at the time decisions were made
- General NSF management practices were consistent with policies in effect at the time

- While there has been steady improvement in operational and management practices, additional improvements can be made.

The Advisory Committee on Science Education, after reviewing the team's work, made five recommendations, which are summarized in the report (Science Curriculum Review Team 1975, p. vi):

- NSF has a continuing role in science curriculum development at the pre-college level; NSF should not avoid controversy at the expense of educational and scientific value
- NSF should take an active and continuing role in determining needs for improvement of pre-college science education
- NSF should use a broad range of granting mechanisms, including expanded use of "program solicitation" procedures
- All large scale projects should have detailed evaluation plans and make provision for external summative evaluation
- Developers should be encouraged to make arrangements for publication, manufacturing, and marketing without a requirement for NSF funds.

The chairman of the internal review team, after discussions with the National Science Board, made six specific procedural and three specific policy recommendations (Science Curriculum Review Team 1975, p. vi-vii):

Procedural

- A needs assessment program should be initiated to develop and establish priorities for curriculum development
- Procedures should be developed to guarantee broad dissemination of needs, competitive proposal procedures, review by qualified professionals and, when appropriate, pilot testing of competing courses
- Formal in-depth review of completed curriculum development programs should be carried out
- More formal, structured procedures should be established for periodic review of ongoing major curriculum development programs
- Barriers to broad diffusion of new curriculum materials should be researched and results broadly disseminated to allow and encourage State and local authorities to exercise their total responsibility for adoption of curriculum materials
- The NSF should ensure, by legally binding agreements, that all curriculum development grants include the NSF disclaimer clause.

Policy

- The National Science Board should develop a definitive policy statement on the purposes and objectives of NSF curriculum development activities. This statement should delineate the extent to which future activities in both the natural and

social sciences should be directed toward the objectives of supporting science training specifically for individuals embarking on science careers, and science education for *all* students to illuminate the underlying nature of our technological world.

- The National Science Board should formulate a clear policy statement on the role of the NSF in natural and social science curricula implementation. Since curriculum implementation activities are designed to disseminate materials that are sometimes regarded as controversial or political in nature, a clear policy is needed for the guidance of future activities.
- Mechanisms for administering curriculum implementation that allow NSF to remain at "arm's length" from the process are needed. New approaches should involve State and local authorities, private institutions and academies.

Summer 1975

Meanwhile, articles with catchy titles, such as "Tempest in an Igloo" (Merry 1975), continued to pop up from time to time in the mass media. In June, Representative James W. Symington of Missouri, Chairman of the Subcommittee on Science, Research, and Technology, commissioned the Library of Congress to prepare a "comprehensive review of the Foundation's pre-college education support activities--past and present" (Library of Congress 1976, Letter of Transmittal). The report would not be complete until January 1976.

On June 20, the National Science Board issued three policy statements, on "pluralism in education," on the Foundation's curriculum development activities, and on the Foundation's implementation activities. The first statement affirmed that the Foundation should not try to avoid controversy, since educational innovation is at its very heart controversial, and it should continue to provide scientifically sound alternatives for the nation's schools to choose from. It then noted the strong American commitment to pluralism and stated that

> As a consequence of this pluralistic value system the Foundation should disseminate as many alternatives as are feasible and necessary given the diversity of views and needs. (Library of Congress 1976, p. 201)

Procedures recommended included conducting a "broad-based analysis of future needs in subject areas," ensuring competitive selection of projects, encouraging "development of alternatives," and establishing "administrative

procedures in the implementation stage that will avoid any appearance of indoctrination or coercion" (Library of Congress 1976, p. 201).

The second policy statement reaffirmed the Foundation's rationale for engaging in "development of course materials and teaching methods in the mathematical, physical, medical, biological, engineering, social, and other sciences at the pre-college level." It stated that the "program should be broadly aimed at encouraging future scientists and technologists as well as increasing the quality of science education available to all students at the pre-college level" (Library of Congress 1976, p. 202).

The third statement indicated the Foundation's intention to continue implementation activities, but with certain new procedural constraints. The full statement is worth quoting:

> State and local authorities have final responsibility for the selection and adoption of educational materials and practices. Ideally such selection is based upon adequate information about available alternatives. The National Science Foundation therefore affirms a continuing role for the National Science Foundation (NSF) in supporting activities designed to disseminate widely information about available alternatives and to assist members of the educational community in the use of new, innovative, and scientifically sound materials and practices in which they have demonstrated an interest.
>
> Prior to undertaking full-scale dissemination and assistance activities for NSF-developed materials, NSF should undertake a careful review to ensure that the proposed subject matter fits within reasonable limits or norms with respect to educational value and that the scientific content is accurate. Recognizing the broad base of concern with elementary and secondary education, the Foundation should provide opportunities for input in this review by representatives of the scientific, educational, child development, commercial publishing, and informed public communities. (Library of Congress 1976, p. 202)

In August, the authorization bill was finally approved, without the Bauman amendment of April 9 but including the Myers amendment in the final version (U.S. Congress, August 1, 1975). The conference committee's report (U.S. Congress, July 30, 1975, pp. 12-13) gives the reasons for not including the grant provision:

> [T]he role of the Congress must be to set policy and priorities and to conduct careful oversight, rather than to be involved in the day-to-day execution and administration of that policy.

and

> [R]eview of research proposals would require members of Congress to make judgments about research activities . . . which the members, with rare exceptions, are in no way equipped to make.

It also notes that the Myers provision for local community inspection was left in the conference version of the bill, as was the Senate's call for a Foundation study of expanded public involvement.

Finally, the report notes the inclusion in the bill of a group of provisions aimed at "significantly restructuring" NSF's science education program. In the words of the report,

> The thrust of these provisions is that the Foundation's Science Education program should consist not only of activities aimed at developing improvements and innovations for use in science education. The Science Education program should also include science education activities providing for the introduction of such improvements and innovations and for the training of students and teachers. (p. 13)

Among these provisions is the division of the former "Science Education Improvement" line item into two separate line items, "Science Education Innovation" and "Science Education Support." "Science Education Innovation" is defined in the Act as "projects aimed at the development of new approaches to the teaching of science to students, teachers, and professionals, including but not limited to new curricula, new technologies, new methods, and retraining or other efforts to make the existing scientific manpower pool better able to fulfill the Nation's manpower needs." "Science Education Support" is defined as "projects aimed at building a capability to teach science, including but not limited to awards for equipment, conferences, and institutional development." (U.S. Congress, 89 *Stat.* 429) It would appear that at least some kinds of "implementation" activities are allowed by this language, although NSF officials and most observers have not interpreted the Act in this way.

Fall 1975

In October, after a brief lull, attention to the issue increased. The October issues of two professional education journals, *Social Education* and the *Phi Delta Kappan*, contained detailed articles presenting the pro and con sides of the MACOS controversy. *Social Education's* articles were by Conlan ("MACOS: The Push for a Uniform National Curriculum") and Dow (a reprint of his paper for the Teague Committee, "MACOS Revisited..."),

while the *Phi Delta Kappan* contained a different presentation by Dow ("MACOS: The Study of Human Behavior as One Road to Survival") and an articulate, critical article ("The Case Against *Man: A Course of Study*") by George Weber, the Associate Director of the Council for Basic Education.

On October 1, the Science Curriculum Implementation Review Group's report, originally due in May, was finally issued. The document includes both a majority report, agreed to by eight of the nine members of the Review Group, and a minority report prepared by one member, Joanne McAuley. The recommendations of the majority were as follows (Ad Hoc Science. . . 1975, pp. 1-2):

> I. With regard to course development and implementation, the Review Group recommends that the NSF continue pre-college science curriculum activities [two members felt they should be limited, however, to only natural science and mathematics] with the following changes in understandings and procedures:
>
> A. Recognition that the NSF and the Congress cannot avoid responsibility for both quality and content of curricula that are federally funded through NSF.
>
> B. Creation of an ongoing needs assessment program that will guide future NSF science curriculum activities.
>
> C. Addition of representative parents to curriculum reviewing and evaluating groups during curriculum pilot-testing periods and all subsequent periods of federal funding, especially in the case of social science curricula.
>
> D. Development of and adherence to complete and clearer policies in all NSF curriculum efforts, including but not confined to: (1) closer monitoring by staff; (2) better evaluation by staff and outside groups; (3) time schedules for support and subsequent phase-out of each NSF implementation effort; (4) consistent and no-favoritism policies covering curriculum promotion, marketing, and publication; and (5) avoidance, in implementation activities, of undue influence, direct or indirect, over local decisions on curriculum adoption.
>
> E. Formal adoption by NSB (National Science Board) of acknowledgment and disclaimer statements, and enforcement of same.
>
> F. Establishment of a clear Congressional policy on all royalty income and its disposition.
>
> II. With regard to MACOS in particular, the Review Group recommends:
>
> A. Early phase-out and termination of MACOS implementation activities by NSF, except for regular processes of

information dissemination and training programs in which more than a single curriculum is offered.

B. Renegotiation of the MACOS publishing and royalty agreement.

C. Requirement that acknowledgment and disclaimer clauses be included in all MACOS materials sold after a mutually-agreed upon date.

D. Insertion in all MACOS teacher materials of statements cautioning teachers regarding their handling of cultural differences and contrasting value systems, with careful attention to honoring the diverse value systems of the homes from which their pupils come.

E. Consideration by MACOS publishers of ways of enlarging their efforts to urge adopting school systems to (1) arrange parent previewing sessions to acquaint them with the course, and (2) make the course optional for students.

The minority report recommended, in short, that "Congress require the NSF to discontinue its support of all course curriculum development and implementation." McAuley listed nine findings in support of her recommendation (1975, pp. 4-19):

I. The National Science Foundation is supporting "career curriculum innovators" whose objectives go far beyond NSF's legislative mandate to help improve science education. . . .

II. There never was a Congressional mandate for NSF to promote and market course materials. . . .

III. National Science Board policies are non-existent or inadequate in NSF course curriculum area in the following categories:

A. Needs Assessment . . .
B. Parent Involvement . . .

IV. The National Science Board issues statements establishing public policy, which is a power reserved to Congress. . . .

V. NSF gives taxpayer dollars to curriculum grantees with no monitoring, checks, or methods for assuring accountability. . . .

VI. There is no effective independent evaluation of NSF curricula. . . .

VII. NSF is required by law and its own adopted policies to ensure the scientific accuracy and public acceptance of curriculum content, as well as to safeguard the well-being of students who will be exposed to such curriculum, before course materials are implemented in school classrooms. . . .

VIII. The majority report of the Science Curriculum Implementation Review Group incorrectly infers that criticisms of MACOS

> philosophy, content, and teaching methods are based on elements that are no longer part of the course. . . .
>
> IX. There is no need for federal intervention in the development and marketing of textbooks and other course curriculum. . . .

Both the minority and the majority report contained extensive explanations of the recommendations made and the information on which they were based.

On October 14, the General Accounting Office's report on its investigation of the administration of MACOS appeared. The Comptroller General had been asked by Chairman Teague on March 13 to review "(1) the development, evaluation, and implementation of the National Science Foundation-supported science education project 'Man: A Course of Study' and (2) the relationships between the Foundation and the project's developer (Education Development Center, Inc.) and publisher (Curriculum Development Associates, Inc.)." (General Accounting Office 1975, cover letter) Concerning MACOS, the GAO recommendations included the following (pp. i-ii):

> The Congress may wish the Foundation to determine the significance of [royalty] income [from grantees and contractors], and require a report of receipts and expenditures for use in considering the Foundation's annual appropriation request.

GAO recommendations to strengthen management of Foundation projects include:

> --Ascertaining if a competitive process is feasible and effective for developing educational products.
>
> --Establishing procedures so that files are documented to show (1) disposition of project evaluators' comments and (2) reasons for supporting or not supporting project implementation proposals.
>
> --Requiring documentation to support reasons given by grantees or contractors in selecting a publisher to market education materials developed with Foundation support and insuring that publisher interest in marketing such materials is redetermined when conditions change that could affect publisher selection.
>
> --Reviewing all contracts and subcontracts for marketing educational materials.
>
> --Conducting a review of the 'Man: A Course of Study' developer's royalty fund transactions, evaluating the review results in considering the need for more frequent audits of the royalty fund, and more closely examining that developer's income reports to help monitor the royalty fund (p. ii).

Going beyond MACOS, the report also recommends (p. ii) that the Foundation

--Establish procedures for selecting peer reviewers of proposals for curriculum development to insure that views of intended users, such as school administrators and teachers, are obtained.

--Review the need for establishing procedures to safeguard human subjects involved in its educational activities.

The GAO examined evaluations of the effectiveness of MACOS, but deferred making recommendations on product evaluation until completion of a broader GAO study on evaluation of NSF-supported education projects in general.

In December, still another review of NSF science education activities took place. In this case, NSF invited panels of educators, social scientists, and laymen to examine each of the 19 curriculum development projects currently sponsored by the Foundation. The panels were to respond to ten questions after reviewing the materials, proposals, and other documents related to each of the projects:

1) Is there a genuine need for these instructional materials?
2) Is there a market for these instructional materials?
3) Do these instructional materials possess a clear purpose and rationale?
4) Is the content of these instructional materials scientifically correct?
5) Is the content of these instructional materials educationally sound?
6) Are the proposed and anticipated outcomes of the instructional materials desirable?
7) Do these instructional materials present implementation problems for the schools?
8) Are the costs of implementing these instructional materials reasonable?
9) Is the management/organization plan adequate for producing these instructional materials?
10) What are your general impressions of the curriculum?

The 74 reviewers spent several days each examining the materials and documents, discussing the projects with each other, and preparing their collective responses to the ten questions. These were to serve as the basis for the Foundation's decisions in March 1976 as to the disposition of its current curriculum development efforts.

Also in December, the Foundation embarked on plans for conducting a comprehensive needs assessment to help shape the future of its science education program. It issued three Requests for Proposals, entitled

"Assessment of Needs and Existing Practices of U.S. Schools in Pre-College Science Education" (National Science Foundation, November 28, 1975), "Survey of Materials Usage in Pre-College Science Education" (National Science Foundation, December 3, 1975), and "Case Studies of Current Practices in Pre-College Science Education" (National Science Foundation, December 12, 1975). Proposals were to be submitted by mid-January and awards made by late spring.

It was not until January that the Library of Congress report (1976), originally commissioned in June by Representative Symington, appeared. The report, which supplied much useful information for this paper, contained a comprehensive history of NSF's science education program; it runs for 297 pages and includes just about everything one ever wanted to know on the subject.

The Decisions

The eleven months from March 1975 through January 1976 had put the Foundation's precollege science education program in an unexpected and, by some, unwanted, limelight. Those months were filled with an unusual amount of public, professional, and Congressional debate and nothing less than five separate in-depth reviews by special committees, panels, and agencies. As a new round of authorization hearings, for fiscal year 1977, approached, the issue appeared to be reaching the point of denouement. A number of decisions had been made or were on the verge of being made in response to the various charges and counter charges that had been raised in debate and investigation. The decisions that have been made so far will be reviewed in the next few pages, keeping in mind that no issue is ever *finally* settled in government policy and program--what Congress giveth one year, Congress may taketh away the next . . . and vice versa.

Averch Testimony

On February 10, 1976, Harvey Averch, NSF's Acting Assistant Director for Science Education, testified before the Subcommittee on Science, Research, and Technology of the House Committee on Science and Technology as a part of the NSF Fiscal Year 1977 budget authorization hearings.

Averch's presentation reflects the thinking about NSF's science education program that had gone on during the preceding year. In it he outlines the rationale for federal involvement in precollege science curriculum development, as well as other educational activities (such as university-level science curriculum improvement and scholarship and fellowship programs). After reaffirming the judgment that primary decisions should be made at the local level, he clearly delineates the circumstances under which federal assistance might be necessary (Averch 1976, p. 2).

He then describes the proposed NSF science education program and budget requests for fiscal year 1977: $23 million for Science Manpower Improvement, $26.9 million for Science Education Resources Improvement, $11.7 million for Science Education Research and Development, and $3.4 million for Science and Society. The first program, Science Manpower Improvement, provides higher education assistance to individuals and institutions. The second, Science Education Resources Improvement, provides assistance for improvement of undergraduate instruction, including preservice teacher education, and for information and dissemination activities related to new materials, practices, and teaching technologies. Averch is careful to point out that the latter are not implementation activities assisting teachers and administrators in placing curricula in the classroom. He also points out that research and development activities have been separated from information and dissemination activities.

The third program, Science Education Research and Development, proposes support for developing educational applications of computer technology and for precollege curriculum development. In his discussion of this program, as already noted in the section above on the issues, Averch delves into the criteria for determining when federal involvement in development is warranted (Averch 1976, p. 15):

(1) there exists a relatively low level of R&D by the private suppliers and an insufficient rate of technical progress;

(2) there exist some institutional barriers to deter R&D private suppliers; and

(3) the public value of technological advance is high.

He notes that NSF has issued three RFPs to conduct more systematic study of the first condition, but that there is already good reason to believe

it holds, since "there is a natural economic tendency for markets concerned with knowledge transfer--education--to have difficulty in capturing internally the aggregate benefits from research and development." There is also good reason to believe that the second condition holds, since "private publishers have also stated that within the industry the infrastructure for R&D and testing and evaluation is not now in place." Finally, he says that, after examining the debate over what happens in precollege curriculum, "it is reasonable to assume that condition (3) holds for a significant segment of the public." (Averch 1976, p. 15)

Next he outlines the new NSF precollege science curriculum development policies that had been communicated to the subcommittee a month earlier:

> (1) No major new curriculum projects will be funded without a systematic needs assessment. Needs assessment will take two forms: analytic surveys and analyses of educational practices and requirements; and public participation and comment on our program designs.
>
> (2) We will use a prototype approach. Several small awards will be made initially, and some products will be produced for further evaluation. Such awards will be made through formal competitive procedures such as program solicitations.
>
> (3) Clear go-no go decision points will be established by NSF so that large investments do not occur without explicit review of progress.
>
> (4) Independent evaluation procedures will be set up at the beginning of each project so that we know directly how the project is doing throughout its life. (Averch 1976, p. 16)

Beyond these specific policy changes, Averch notes that the NSF staff is currently reviewing all current development projects the Foundation funds for possible curtailment or modification and that NSF will continue to watch the development of the educational marketplace for signs that the private sector is becoming able to deliver needed products on its own in science education.

Finally, Averch describes the Foundation's new Science and Society educational program, which need not distract us here.

Disposition of 19 Current Projects

One month after Averch's presentation to the subcommittee, in which he had mentioned the review of current curriculum development projects, the Foundation issued a press release announcing its decision on continued support for the 19 precollege projects it was currently supporting. It stated that three of the 19 would be continued at approximately the same level as had been proposed; another three would be continued at a reduced level; eight were almost completed and would require little or no additional funds; and five would not be continued at all. The three which were to be continued virtually unchanged were:

Human Sciences Program (Biological Sciences Curriculum Study, Boulder, Colorado)

Comparing Political Experiences (Indiana University)

Biomedical Interdisciplinary Curriculum Project (California Committee on Regional Medical Programs, Berkeley, California)

The three to be continued at a reduced level were:

Mathematics Resources Project (University of Oregon)

Individualized Science Instructional System (Florida State University)

Outdoor Biology Instructional Strategies (University of California at Berkeley)

The eight that were almost complete, requiring little or no additional funding were:

Sourcebook in Applied Mathematics (Cornell University)

First Year Algebra (University of Chicago)

Arithmetic Project (Education Development Center, Newton, Massachusetts)

Modes in Math Project (University of Illinois)

Problem Solving Instructional Material (University of Oklahoma)

Social Biology Films (University of Maryland)

Exploring Human Nature (Education Development Center, Newton, Massachusetts)

Technology, People, Environment (State University of New York at Stony Brook)

The five that were discontinued were:

Mathematical Problem Solving Project (Indiana University)

Project for Mathematical Development of Children (Florida State University)

Mathematics Project for the 7th and 8th Grades (Boston University)

Unified Science and Mathematics for Elementary Schools (Education Development Center, Newton, Massachusetts)

Human Behavior Project (Carleton College, Northfield, Minnesota)

NSF stated that the last group were "projects with substantial further development funding required, regarding which serious criticisms have been raised by evaluators..." (National Science Foundation, March 10, 1976). At least two (Human Behavior and Unified Science) of the five projects have protested and NSF has decided to allow them to submit revised proposals under a new reconsideration policy ("House Debates NSF Bill" 1976; National Science Foundation, January 27, 1976).

House Debate on 1977 Budget

On March 24, 1976, the 1977 NSF authorization bill was introduced on the floor of the House by Teague and Symington. Symington noted four recommendations of his subcommittee:

1) that the downward trend of the science education budget over the past few years be reversed (the entire $9 million increase in NSF's budget for fiscal year 1977 was to be allotted to science education);

2) that the National Science Board membership be broadened to include experts in science teaching or educational research;

3) that more attention be given by NSF to junior and community colleges; and

4) that the science education program be restructured to allow for limited continuation of development and to begin a modest basic research program (U.S. Congress, March 24, 1976, p. H2336). Symington also noted that the subcommittee specified that no funds were to be authorized for implementation of courses and urged that NSF conduct a reassessment of its role and assessment of needs in precollege science education.

On the following day, March 25, debate and voting took place. As in the previous year's debate, NSF's science education program was one of the primary focuses of concern. But this year there was hardly any discussion of MACOS, since the previous year's controversy had effectively stopped any further funding for that project.

Instead, Conlan's attention shifted to two other NSF science education projects, Individualized Science Instructional System (ISIS) at Florida State University and Human Science Program (HSP) at the Biological

Science Curriculum Study in Boulder, Colorado. Conlan cited alleged mismanagement practices in connection with these two projects and also criticized their content and instructional methods, much along the same lines as he had earlier criticized MACOS content and instructional methods. He proposed an amendment that would eliminate all development funds from the fiscal year 1977 NSF authorization and would shift the funds that had been proposed for development into summer training institutes for elementary and secondary teachers. The institutes were to focus on bringing participants up to date on the latest research findings in science and mathematics in order "to improve their cognitive instructional capabilities" and the institutes would not "be used as mechanisms for promoting or marketing course materials, programs, or teaching methodologies" (U.S. Congress, March 25, 1976, p. H2413).

The debate echoed that of the previous year, although it is clear that the adversaries had, in the meantime, polished their arguments and checked their facts more carefully. In the end, Conlan's amendment failed by a vote of 160 to 232, with 40 not voting (*Denver Post* 1976).

Another amendment, called a "sunshine" amendment in debate and offered by Bauman, was a spinoff from the amendment prepared by Bauman the previous year. It sought to require NSF officials to respond within 15 days to any requests for information of any sort from any Congressman. It, too, was defeated, 136 to 257, with 39 not voting (*Denver Post* 1976).

The full bill, allowing for an increase for science education in fiscal 1977, was passed by a vote of 358 to 33 with 41 not voting (*Denver Post* 1976). At the time of this writing, the Senate had not yet acted on the bill. It is reported that the Senate bill's language does not rule out use of funds for implementation, although the House version does, and that it is likely that the Conference bill will follow the House version in regard to implementation.

Summary of Decisions

The decisions that have been made so far in response to the controversy include the following.

--A decision to stop, temporarily at least, funding for precollege science curriculum implementation projects. This was the first decision

made; it was announced in Stever's letter to Teague on March 17, 1975. As noted above, the Senate seems to be in sympathy with continuation of implementation activities, but the House does not. In all likelihood, NSF will not resume activity in implementation during the 1977 fiscal year.

--A decision to continue precollege science curriculum development, though at a reduced level. Both NSF and the majority in Congress are speaking and behaving as though curriculum development activities should and will continue. However, NSF has cut back on the number of projects it funds and the pressure to eliminate development altogether still exists. Some observers believe that it will not be long before NSF gets out of the development business entirely.

--A number of decisions about procedures and policies to be followed in future curriculum development efforts, assuming the Foundation continues such activity:

- --NSF will conduct more systematic needs assessments, which will help them determine what sorts of development projects to fund in the future. Awards for three assessment studies have already been made.
- --NSF will include input from a wider spectrum of people in its needs assessment, proposal review, and project review efforts.
- --NSF will institute more careful procedures for review and selection of proposals. An Action Review Board that includes NSF staff members from outside the science education program will ensure that there is adequate documentation on all decisions and that reviewers are properly selected. The Conlan and Bauman proposals for grant review have been rejected by Congress.
- --Some proposal awards will be handled on a competitive basis in future, although NSF plans to leave the door open to unsolicited proposals, too.
- --A prototype approach to development will be used. This will entail closer monitoring of projects by the NSF staff, the establishment of clear decision points during the progress of each project, and the use of more rigorous and independent formative evaluation procedures.

--An Office of Program Integration has been established in NSF to improve evaluation efforts.

--Procedures for review of materials before authorizing publication and for review and monitoring of publication arrangements are currently being worked out by NSF

--All royalties from sale of NSF-sponsored curriculum materials must henceforth be returned to NSF, which, in turn, must turn them over to the U.S. Treasury.

A Less-than-final Word

The preceding paper has attempted to give readers a vivid, yet not overly passionate, sense of the issues in the science education controversy and how they grew from small beginnings. What has not been told here are the down-to-earth, personal stories of educators who have seen their life's work denunciated, of civil servants who have seen their honesty questioned and their jobs hanging in the balance, of parents and citizens on both sides who honestly fear for the safety and welfare of their children and society. These things are only dimly reflected, if at all, in the higher reaches of Congressional and media debates reported here.

In the final pages, I attempted to sketch out the decisions and actions that have been taken in response to the controversy. Needless to say, this is not the last word. In March of this year Congressman Conlan reviewed his successes to date and indicated his intention to continue his criticism:

> As the result of criticisms from citizens throughout the country and recent evaluations by Congress and the Foundation itself, NSF curriculum programs have been largely curtailed. Promotion and marketing of curriculum materials that I sought to eliminate last year has been eliminated by the subcommittee from this authorization bill as a separately funded category. And curriculum development has been reduced to support of several long-range multimillion-dollar curriculum projects.
>
> However [funds are still earmarked] for two highly questionable active curriculum products. [Funds already available] are quite sufficient for curriculum development, and should be used to phase out NSF curriculum activities altogether (U.S. Congress, March 25, 1975, p. H2930).

We can be assured that we have not heard the end of the matter.

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FOR FURTHER READING

Through the ERIC system, readers can pursue any number of issues raised in this paper. ERIC's *Current Index to Journals in Education* (CIJE) provides access to the journal literature on educational topics and *Resources in Education* (RIE) indexes other documentary literature in education, including conference papers, governmental reports, unpublished papers, books, and organizational position papers.

Seven of the many topics related to this paper that readers might want to follow up are listed below. (Back to Basics, Censorship, Federal Aid to Education, The Evolutionist-Creationist Controversy, The Sex Education Controversy, The Religion-in-the-Schools Controversy, and Additional Readings on the NSF Controversy.) For each topic we have listed a few of the many items related to the topic found in the ERIC indexes.

Items with EJ numbers are from CIJE; they refer to articles published in journals that should be available in school, public, or university libraries. Items with ED numbers are from RIE. Unless otherwise noted, microfiche (MF) or paper copies (HC) of the RIE documents can be obtained from ERIC Document Reproduction Service (EDRS), Computer Microfilm International Corporation, P.O. Box 190, Arlington, VA 22210. All EDRS orders must refer to the ED number and be accompanied by a check or money order for the full amount of the order, including postage. The current book rate is $0.21 for the first pound and $0.08 per half-pound increment over the first. One pound is approximately 35 microfiches (one microfiche contains 96 document pages) or 100 paper copy pages, including containers. You should check with your post office for possible changes in book rates. If there is an ERIC collection at a nearby university library or school resource and service center, you might prefer to look over specific documents there before ordering.

Back to Basics

EJ 100 987. "Bring Back 'The Basics,' Board Members and Administrators Say Loud and Clear." *American School Board Journal*, 161:8 (August 1974) 31-35.

This article presents the results of a survey conducted at the National School Boards Association's annual convention in Houston (1974). It spells out the specifics concerning how participants voted, in separate breakdowns for superintendents and school board members.

EJ 110 798. "Back to Basics--Challenge or Copout?" By Frank McLaughlin. *Media and Methods*, 11:4 (December 1974) 8-10.

This article discusses back-to-basics at the high school level.

EJ 122 506. "Back to 'The Basics' in Schools: Here's the Case for Pushing the Current Trend into a Landslide." By George Weber. *American School Board Journal*, 162:8 (August 1975) 45-46.

Public education is justified only when schools provide a sound, basic education for all students. Devotion to basic education does not mean indifference to the social and vocational development of students. On the contrary, the first essential in such development is, and always has been, competence in the basics.

ED 106 230. *Forward to Basics*. By Samuel G. Sava. Chelmsford, MA: Merrimack Education Center, 1975. 13pp. EDRS Price: MF-$0.83; HC-$1.67 plus postage. Also available from Merrimack Education Center, 101 Mill Road, Chelmsford, MA 01824 (no price quoted).

The last ten years have been a distinctive decade in American education. There was much argument for change in the 1950s, but it was Sputnik that sparked action in the field of education. The assumption at that time was that if the U.S. was technologically "behind," the schools were to blame. Federal funds for schools began as an "emergency" measure. These funds were renewed year after year until, by 1964, they had taken on the characteristics of a permanent federal allocation. By the end of the Kennedy administration and the beginning of the Johnson administration, "national defense" was perceived in more subtle terms. It became evident that there were also domestic problems that could cripple our society. Equality of educational opportunity became very important. Much legislation was passed at that time and the field became saturated with innovations. In a few years, however, students began protesting "lack of

relevance" and it was alleged that differences among schools didn't make much difference. We have now entered a period of reaction--a desire to return to "the basics." To advocate a return to "traditional" education, however, is to ignore all that has been learned in the past ten years. Specifically, we know that each student has differing aptitudes for different subjects. The task for the 1970s is not to go back to basics; it is to use well-planned programs of educational improvement to move forward to basics.

Censorship

EJ 085 911. "From Scopes to Epperson and Beyond: Academic Freedom in the Schools." By M. Chester Nolte. *School Law Journal*, 3:1 (Spring 1973) 37-47.

This article examines court cases affecting academic freedom. It observes that the courts have not established a separate and independent right to academic freedom, although they have almost unanimously upheld the right of the student to learn and the teacher to teach that which is controversial, utilizing the First Amendment protections of freedom of expression in so doing.

EJ 104 815. "Science and Censorship." By Clifford A. Hardy and Paul J. Cowan. *Science and Children*, 12:1 (September 1974) 26-27.

The authors express their concerns about attempts, completed and anticipated, to censor science content in textbooks and provide examples of censorship of material on evolution in biology textbooks.

EJ 114 990. "The West Virginia Textbook Controversy: A Personal Account." By Todd Clark. *Social Education*, 39:4 (April 1975) 216-19.

The unrepresentativeness of school policy discussions, religious fundamentalism, and the local opinion that schools should uphold and inculcate traditional values of home and community are emphasized as the reasons for the West Virginia textbook controversy.

ED 105 518. *Censoring Textbooks: Is West Virginia the Tip of the Iceberg? A Transcript of "Options on Education," December 11, 1974.* Washington, DC: George Washington University, Institute for Educational Leadership, 1974. 16pp. EDRS Price: MF-$0.83 plus postage; not available in paper copy.

Interviews with several individuals representing a variety of viewpoints about the recent controversy regarding textbooks and philosophy in the Kanawha County (West Virginia) public schools are presented in this transcript of a National Public Radio program broadcast in December 1974. Beginning with a discussion of the issue of textbook selection and content in Kanawha County, the interviews move into a brief but broad discussion of educational philosophy (humanism versus absolutism) of morality and the value systems of American children and American society, and of parent role and local input in schools. In addition to Kanawha County residents, school personnel, and a school board member, interviews are conducted with representatives of citizens groups based in California and Maryland, the president of the National Education Association, a staff member of the National Council of Teachers of English, and the superintendent of West Virginia schools. From these interviews it becomes clear that the controversy begun over textbooks envelops more than a few words or reading selections; it encompasses the foundations of American education and questions who, indeed, should run our schools.

ED 115 520. *Censorship: The Challenge to Freedom in the School.* Washington, DC: American Association of School Administrators, Association for Supervision and Curriculum Development, and National Association of Elementary School Principals; Reston, VA: National Association of Secondary School Principals, 1975. 9pp. EDRS Price: MF-$0.83 plus postage; not available in paper copy. Paper copy available from Association for Supervision and Curriculum Development, Suite 1100, 1701 K Street, NW, Washington, DC 20006 (single copy $0.50; discounts for bulk orders).

Concerned with the freedom to teach and learn, this document offers guideline procedures for avoiding censorship disputes and for dealing with controversies which surround these issues. The experience and advice of

several superintendents, principals, librarians, teachers, and curriculum workers who have recently been involved in textbook censorship controversies are brought together. Their opinions and suggestions are offered to focus attention on community and school circumstances before a problem develops. The key to avoiding major disputes is the establishment and use of a formal, definitive, written procedure for the evaluation and selection of materials. A sample procedure policy is provided which emphasizes comprehensive objectives, direct board responsibility, strong curriculum-based selection criteria, high level professional review procedures, an advisory committee appointed by the board or superintendent that includes students and parents, and a specific outline of policy and action on challenged materials. Should a complaint arise, suggestions for dealing with it include moving the controversy to the school board level in order to avoid any parent-teacher-principal conflict, and defending the professional selection process rather than the individual piece of instructional material.

ED 117 854. "Censorship--Or For Whom the (School) Bell Tolls." By David Weingast. Paper presented at the Annual Convention of the American Association of School Administrators, February 1976. 7pp. EDRS Price: MF-$0.83; HC-$1.67 plus postage.

The speaker discusses the establishment of a district policy on the selection of books and the procedures that should be followed if a controversy develops.

ED 119 287. *Textbook Selection and Controversy*. The Best of ERIC, Number 16. Eugene, OR: University of Oregon, ERIC Clearinghouse on Educational Management, 1976. 5pp. EDRS Price: MF-$0.83; HC-$1.67 plus postage. Also available free, as long as supply lasts, from ERIC Clearinghouse on Educational Management, University of Oregon, Eugene, OR 97403.

This annotated bibliography summarizes 11 selected publications concerned with the general topic of textbook content and selection. The selections are intended to give practicing educators easy access to the most significant and useful information on school textbooks that is available from

the Educational Resources Information Center (ERIC). All the publications described here were selected from the ERIC catalogs *Resources in Education* (RIE) and *Current Index to Journals in Education* (CIJE). Information on how to order copies of all the cited publications through the ERIC Document Reproduction Service is also included.

ED 120 766. *Viewpoints: Controversy in Content and Materials in Schools.* Atlanta, GA: Georgia State Department of Education, Office of Instructional Services, 1973. 18pp. EDRS Price: MF-$0.83; HC-$1.67 plus postage.

An argument is presented in this booklet for the formal study of controversial issues and materials in public secondary schools. The democratic ideal of freedom of discussion is cited as justification for this stance. Included are discussions of (1) the democratic point of view as it relates to educational goals, (2) the student's right to study controversial topics, (3) guidelines for the evaluation of controversial publications and productions, (4) the role of the teacher in planning and administering curriculum, and (5) suggestions for screening instructional material. Appendices include further comment on both American and worldwide social values, discussion of school policies and procedures for selection of instructional materials, and a typical formal complaint form.

Federal Aid to Education

EJ 132 058. "Public Policy Implications of Public Assistance to Non-public Education." By Edward R. D'Alessio. *Religious Education,* 70:2 (March-April 1975) 174-184.

This article argues that the present is both the best and worst of times for the nation's non-public schools, that the "aid question" interferes with the public's appreciation of the contribution of non-public schools, that numerous Federal and State laws and Court decisions recognize the legitimate rights of non-public school children and their parents, and six other points.

EJ 132 455. "Problems and Issues of Federal Aid to Education." By Hartwell D. Reed, Jr. *Journal of Education Finance*, 1:1 (Summer 1975) 111-120.

The author examines current federal legislation and current attitudes in Congress regarding aid to education, discusses the impact of educational spending on the overall economy, and considers prospects for a major increase in federal education aid in the near future.

The Evolutionist-Creationist Controversy

EJ 066 756. "Creationists and Evolutionists: Confrontation in California." By Nicholas Wade. *Science*, 178:4062 (November 1972) 724-29.

This article summarizes the history of the conflict between "evolutionists" and "creationists" concerning the content of biology textbooks, based on the Science Framework for California Public Schools, and discusses the positions that have to be resolved by the California Board of Education.

EJ 069 310. "Ambivalent Aspects of Evolution." By Garrett Hardin. *American Biology Teacher*, 35:1 (January 1973) 15-19.

The author proposes that the process of natural selection has resulted in higher forms of life. The Theory of Creation fails to appreciate the continuing nature of the natural selection process. Proofs of the natural selection process and the origin of species with new characteristics are observable.

EJ 069 311. "Evolution, Creation, and the Scientific Method." By John N. Moore. *American Biology Teacher*, 35:1 (January 1973) 23-26, 34.

Doubts about the validity of the general theory of evolution are raised. Evidence in favor of evolution is circumstantial and not reproducible. Teachers should explain the theory of creation proposed in the Bible when discussing evolution.

EJ 072 507. "Myths and Models: The Problem of Origin." By Joseph D. Ciparick. *Science Teacher*, 40:1 (January 1973) 22-24.

A comparison of religious and scientific explanations of the origin of life is discussed. It is felt that both sides are equally guilty in their approaches to win converts. In the true education of students, there should be open-minded explanations.

EJ 075 785. "Nothing in Biology Makes Sense Except in the Light of Evolution." By Theodosius Dobzhansky. *American Biology Teacher*, 35:3 (March 1973) 125-129.

The Theory of evolution is not fact but is a scientific theory based on numerous pieces of concrete evidence. The only way to disprove this theory is to show evidence against it. The creationist view cannot be accepted in the light of new knowledge in molecular biology and other fields.

EJ 075 787. "Creation, Evolution, and the Historical Evidence." By Duane T. Gish. *American Biology Teacher*, 35:3 (March 1973) 132-140.

The author points out that two models of creation and evolution designed to explain life forms are equally competent and one is not less scientific than the other. Both of the models should be included in school curriculum.

EJ 077 401. "Evolution Is God's Method of Creation." By Julia Van Denack. *American Biology Teacher*, 35:4 (April 1973) 216-18.

The scheme of evolution proposed by de Chardin encompasses the views of both creationists and evolutionists. Evolution is explained as an act of God and the basic form of development of life from primordial matter.

EJ 077 407. "Adam and Eve in Science." By Adrian M. Wenner. *American Biology Teacher*, 35:5 (May 1973) 278-79.

The present conflict between creationists and evolutionists may appear to be focused on demanding equal time in school curriculum, but an attack may be made in the future on the scientific method itself. Stronger arguments should be made against creationists' viewpoint to uphold the rationale of scientific scrutiny before accepting a belief as fact.

EJ 104 794. "Effects of the Scopes Trial." By Judith V. Grabiner and Peter D. Miller. *Science*, 185:4154 (September 1974) 832-37.

Considered are the effects of the Scopes trial on textbook publishers, textbook writers, and textbooks used in schools. The authors question whether it was a victory for evolutionists or for other groups.

EJ 136 078. "The Science-Textbook Controversies." By Dorothy Nelkin. *Scientific American*, 234-4 (April 1976) 33-39.

The discrepancies between science and creationism are reflected in curriculum controversies. Students should be free to choose which theory they like, according to the creationists who view Darwinian science as incompatible with absolute moral values.

The Sex Education Controversy

EJ 087 749. "Sex Education: Let's Get on With It." By Lloyd P. Campbell. *Phi Delta Kappan*, 55:4 (December 1973) 245.

This article suggests that there is plenty of evidence that the needs of youth for realistic sex education are not being met. Urges that professional educators convince the public that this ignorance is dangerous and destructive.

EJ 090 667. "The Moral Considerations Affecting Sex Education in the Primary School." By J. F. Risby. *Journal of Moral Education*, 3:1 (October 1973) 325-343.

The author raises the question of whether to deal with the problem of sex education with or without direct moral guidance.

EJ 090 668. "Sex Education Within a Social Context." By C. De Santo. *Journal of Moral Education*, 3:1 (October 1973) 345-352.

This article considers the debate over the inclusion of sex education in the school curriculum.

EJ 103 214. "What Place Does Sex Education Have in the Schools?" By Sol Gordon. *Journal of School Health*, 44:4 (April 1974) 186-89.

This article defines sex education and discusses how it should be presented in schools.

EJ 103 215. "Viable Sex Education in the Schools: Expectations of Students, Parents, and Experts." By Paul B. Dearth. *Journal of School Health*, 44:4 (April 1974) 190-93.

This article presents the results of a survey that asked pertinent questions of the most concerned groups about their expectations regarding human sexuality education in schools.

EJ 110 945. "A Strong Case for Straightforward Sex Education in the Home and the School." By Sol Gordon. *American School Board Journal*, 162:2 (February 1975) 37-41.

The author argues in favor of sex education as a joint responsibility of schools and parents.

EJ 110 946. "But Are the Schools Really the Best Places for Sex Education?" By Donald A. Boyle. *American School Board Journal*, 162:2 (February 1975) 40-41.

The author argues that sex education in public schools is not educationally feasible because of diverse community values and inadequate teacher preparation.

EJ 110 947. "The Time May Be Right to Start Sex Education Sans Controversy." By Lloyd P. Campbell. *American School Board Journal*, 162:2 (February 1975) 41.

The author states the need for a comprehensive sex education program at all levels of public schooling and suggests that implementation may be easier now than ever before.

ED 120 633. *The School's Responsibility for Sex Education.* Fastback Number 47. By Elizabeth K. Mooney. Bloomington, IN: Phi Delta Kappa Educational Foundation, 1974. 32pp. EDRS Price: MF-$0.83; HC-$2.06 plus postage. Also available from Phi Delta Kappa, 8th and Union, Box 789, Bloomington, IN 47401 ($0.50 per copy; quantity discounts available).

Sex education is a crucial part of the school curriculum, and the first responsibility of the school in this area is to train and employ teachers who know their task and accept it with grace. The second responsibility is to recognize the community, its class stratification, and ethnic structure so the program will reflect the cultural values of the community. The third responsibility is "to get started." Included in this pamphlet is a chapter on practical suggestions for initiating or improving sex education programs.

The Religion-in-the-Schools Controversy

EJ 085 513. "Religion: Not 'Teaching' But 'Teaching About'." By Margherite LaPota. *Educational Leadership,* 31:1 (October 1973) 30-33.

Teaching about religion has never been expressly forbidden to public schools. This article presents a program for teaching and establishing the academic study of religion.

EJ 085 565. "Confronting the Court." By Robert N. Lynch. *Momentum,* 4:3 (October 1973) 40-43.

This article discusses the influence that Supreme Court decisions have had on various religions and proposes what could be done to change those decisions.

EJ 102 583. "Compliance with the Schempp Decision: A Decade Later." By Michael W. LaMorte and Fred N. Dorminy. *Journal of Law and Education,* 3:3 (July 1974) 399-407.

In the Schempp decision, the United States Supreme Court held that Bible reading and prayer in the public schools during normal hours violated the first amendment's religious freedom protections. This article looks at State statutory or constitutional compliance; court action in upholding or invalidating statutory or constitutional provisions; applicable attorney-general opinions and alternative methods of providing public school students with a spiritual experience.

EJ 112 394. "The Role of Religion in the Schools: Challenge to the Administrator." By Bernard R. Bonnot. *Administrator's Notebook*, 23:3 (November 1974) 1-4.

The author reviews the historical development of the role of religion in American schools and offers relevant advice to administrators.

ED 104 735. *Handbook on the Legal Rights and Responsibilities of School Personnel and Students in the Areas of Moral and Civic Education and Teaching About Religion*. Sacramento, CA: California State Board of Education, 1973. 32pp. Not available from EDRS. Available from California State Department of Education, Bureau of Publications, State Education Building, 721 Capitol Mall, Sacramento, CA 95814 ($0.50).

This handbook, developed by the California Moral Guidelines Implementation Committee, provides a structure of legal rights and responsibilities for school personnel and students in moral and civic education and teaching about religion. These guidelines were adopted by the California State Board of Education in 1973. Section 1 presents the legal and educational responsibilities of school personnel in teaching about moral values and public education which include responsibilities on teaching about morality, truth, justice, patriotism, self-esteem, integrity, empathy, moral interaction, and recognition of values. Section 2 includes the California Administrative Code on professional teacher and student conduct and the educational role of the school in promoting the knowledge of constitutional government and democracy. Section 3 provides the Supreme Court and California decisions on teaching religion in public schools. The distinction is made between teaching about and practicing religion in the classroom. Appropriate subject matter and teaching guidelines for teaching about religion are included.

ED 108 989. *Religion Studies in the Curriculum: Retrospect and Prospect, 1963-1983.* PERSC Selected Papers/Symposium 1. Ed. by Peter Bracher and others. Dayton, OH: Write State University, Public Education Religion Studies Center, 1974. 100pp. EDRS Price: MF-$0.83 plus postage; not available in paper copy from EDRS. Paper copy available from PERSC, Wright State University, Dayton, OH 45431 ($3.50 per copy; discounts available on bulk purchases).

This publication consists of the papers presented at the first national symposium of the Public Education Religion Studies Center (PERSC). The purpose of PERSC is to encourage and facilitate increased and improved nonsectarian teaching about religion within constitutional bounds at the elementary and secondary level. It emphasizes the natural inclusion of the study about religion within the regular curricular offerings such as history, art, English, music, and geography. PERSC also conducts workshops, maintains a resource center of available curriculum materials, publishes a quarterly newsletter, evaluates existing curriculum materials, and develops new materials when necessary. The papers presented at the symposium address themselves to the legal and educational dimensions of religious education in the past and near future. Titles include: (1) Religion Studies in the Curriculum, 1963-1983; (2) Personal Reflections on the Schempp Decision; (3) The Decisions of the Court; (4) The definition of Religion; (5) Objectivity and Teaching the Bible; (6) Imagining Criteria of Curriculum Design for Learning about Religion in Public Education; (7) Religious Education versus Academic Religion Studies; and (8) Conclusion: Status and Prospects. Appendices include criteria for evaluating curricular materials, guidelines for teacher education programs, and guidelines for teacher competence.

ED 108 990. *Public Education Religion Studies: Questions and Answers.* PERSC Guidebook. By Peter Bracher and others. Dayton, OH: Wright State University, Public Education Religion Studies Center, 1974. 28pp. EDRS Price: MF-$0.83; paper copy not available from EDRS. Paper copy available from PERSC, Wright State University, Dayton, OH 45431 ($1.50 per copy; bulk discounts available).

In this guidebook, the Public Education Religion Studies Center (PERSC) provides answers to questions frequently raised about religion studies in public schools. It is useful to those initiating study about religion in public schools and to those evaluating both formal and informal study and experiences now part of a school's program or activities. The 11 questions under consideration include: (1) Is It Legal to Teach About Religion in the Public School? (2) Why Should Religion Studies Be Included in the Public School Curriculum? (3) What Are the General Goals for Religion Studies? (4) How Should Religion Be Defined for Public School Study? (5) How Do You Study About Religion in Public Schools? (6) Where Is the Best Place to Include Religion Studies in the Curriculum? (7) What Are the Qualifications for the Teacher of Public School Religion Studies? (8) What Criteria Should Be Used in Selecting Teaching Materials? (9) Are There Any Curriculum Materials Which Meet These Criteria? (10) What Suggestions Can Educators Give to Citizens and Community Groups Who Seek Help? (11) What Help Can PERSC Offer Teachers or Schools?

ED 113 804. *The Supreme Court and the Religion-Education Controversy: A Tightrope to Entanglement*. By J. Stephen O'Brien and Richard S. Vacca. Durham, NC: Moore Publishing Co., 1974. 113pp. Not available from EDRS. Available from Moore Publishing Co., Box 3143, West Durham Station, Durham, NC 27705 ($8.95).

The scope of this book is limited to a study of case law encompassing the major decisions of the United States Supreme Court involving religion and education. It is intended to aid readers in predicting the legal ramifications of various legislative enactments and administrative policies affecting the schools and in understanding the reasoning and procedures of the United States Supreme Court. The book is divided into six chapters. Chapter 1 is an introduction to the courts' involvement in educational decision-making; chapters 2 and 3 examine the major constitutional tests utilized by the Supreme Court in resolving cases involving the relationship of religion to education; chapters 4 and 5 discuss the emergence of the new "entanglement" test from the earlier test of "neutrality" and "child benefit"; and chapter 6 attempts to synthesize the material presented and aid readers in understanding future legal ramifications of the "entanglement" test.

Additional Readings on the NSF Controversy

EJ 126 684. "National and Legislative View: Publication, Marketing, and Royalty Policies for NSF Education Materials--Time for a New Look?" By Lester G. Paldy. *Journal of College Science Teaching*, 5:1 (September 1975) 37-43.

The author reviews events leading to the congressional controversy of funding the precollege implementation program of the National Science Foundation (NSF) and attempts to identify some issues related to NSF involvement in the implementation of curriculum projects that merit further study by those responsible for developing long-range educational policy.

EJ 128 447. "NSF: How Much Responsibility for Course Content, Implementation?" By John Walsh. *Science*, 190:4215 (November 1975) 644-46.

This article describes the controversy in the House of Representatives concerning National Science Foundation's (NSF) educational programs in general, and specifically, the NSF-supported behavioral science course for fifth graders, *Man: A Course of Study*. Political pressure is being placed on NSF to assume greater responsibility for educational materials it supports.

EJ 133 480. "NSF Accused of Misusing Peer Review System." By Fred H. Zerkel. *Chemical and Engineering News*, 54:6 (February 1976) 13.

This article discusses the political controversy surrounding a National Science Foundation (NSF) peer review memorandum that erroneously reported unanimous funding approval for a project.